The Builder.

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Some Considerations as to Competitions.

SEVERAL important questions in regard to competitions were discussed at the business meeting of the Institute of Architects last Monday. The resolutions to be proposed by various members, with one exception, were published in our issue of January 5, under the head of meetings; and though we do not feel at liberty to say anything in detail as to the proceedings at a meeting from which reporters were excluded, there are one or two points arising out of the subjects discussed on which we may make comment.

We have already expressed an opinion as to the very unbusiness-like system proposed in the Report of the London County Council Establishment Committee, of advertising a general competition and then adding to the list of competitors eight other architects by special invitation—an arrangement which seems to be hardly compatible with fairness to all concerned; and we have also condemned the proposal to throw open the competition to architects of all nationalities, a proposal, as far as we can remember, unprecedented in the case of a municipal building, and which we do not believe would have been countenanced or adopted in any other capital in the world. In regard to the first point we now learn that it was the recommendation of the Institute Council, upon whose advice and suggestions the proposed Instructions for the County Hall Competition were drawn up. We presume therefore that the Council of the Institute see some advantage in this method of arranging a competition; we can only say that we cannot follow them in it. In regard to the second point, it appears that the Institute Council made no suggestion (or did not intend to make any) in regard to throwing open the competition to foreign architects, but that the London County Council read their phrase as to the sketch competition being "open to all architects" as meaning to include all architects in all countries, and have acted on this. It was an unfortunate expression, and led to misunderstanding; it should have read "open to all architects in the United Kingdom," and then there could have been no misunderstanding. But as the Institute have now discovered that their advice has been misinterpreted, surely they should have communicated with the County Council in correction of the error. Have they done so? And if not, why not?

At the same meeting a resolution was proposed to the effect that an assessor in a competition should always express his opinion on the merit of the best design in a clear and decisive manner, and not suggest doubts of which the Committee might take advantage to set aside his judgment. This is no doubt very necessary; we remember one case in which the judgment of the Assessor was set aside on this very ground; but the view taken at the meeting seems to have been that the Institute suggestions for the Regulation of Competitions already include advice to the same effect. They do not, however, exactly represent anywhere what the Resolution proposed represented. What they do say is at once too little and too much. They do not advise that he should be clear and precise in his reasons, but they do say that he is "to make a selection," and this has been interpreted, and was so interpreted at the meeting, that he is "to make an award." That is where we think the Institute and many of the profession have been in the wrong all along. They are demanding too much from the Committees, in demanding that they should give up all voice in choosing their own architect for their own building. The position of Assessor and Committee is really, or should be, analogous to that of judge and jury in a court of law. The judge does not give the verdict, but he sums up the case for the jury and assists them to find a right verdict. The institution of juries was exactly with the object of interposing a general consensus of opinion, as a defence for the client against the possible personal bias of one man. There is nothing unreasonable in regarding the Committee on a competition as fulfilling the same function. An assessor, like a judge, is only human, and, like the judge, may have an individual bias. The Committee, if they are wise and well meaning, will give full weight to his opinion, and the more so the more decisively it is expressed. But they are the jury.

BURLINGTON HOUSE AND THE NEW GALLERY.

IN significant contrast we see in the two principal winter exhibitions now open the old art of painting and what are advertised as its most recent developments. At Burlington House we have the usual annual exhibition of works by old or deceased masters, lent from private collections: at the New Gallery we have the exhibition of ultra-modern work of the Society which calls itself the "International Society of Sculptors, Painters, and Gravers," though the International element is not very much developed, and some of what there is of it could be well spared. Broadly speaking, the distinction between the two exhibitions is that at the "Old Masters" we find, for the most part, or we might say in the whole collection, evidence of conscientious care and thoroughness in working out and finishing a picture; at the New Gallery we are asked to accept rough sketches, on a large scale, for pictures. At the "Old Masters" the object of most of the works appears to be beauty, of one type or another; even the boorish scenes of Ostade and Metsu are to some extent glorified by the care bestowed on lighting and composition; but for the most part the subjects treated are such as are marked by dignity or beauty of conception. At the New Gallery, in many instances, mere vulgarity and ugliness seem to be sufficient attractions in themselves; art has done with beauty, apparently, and has fled to ugliness of ideal and what can only be called brutality of method and execution, in the desire to become new and original. Look at such pictures as Nos. 155, 157, 161, or 222 in the New Gallery, and say if this is not the very degradation to basest uses of the once great and noble art of painting. It is not all as bad as this, of course, but an exhibition Society which can admit such things on to its walls at all must have totally thrown overboard all the best and sanest traditions of the art of painting. It is difficult indeed to understand what can possibly be the supposed object of such paintings as those just referred to, and others in the same gallery. They are not even clever; they seem to represent the negation of all that has hitherto been regarded as art—of drawing, painting, composition, and sentiment.

In regard to the Old Masters' exhibition there is no doubt something to be said on the other side. The interest of some of the works so classed, exhibited from time to time at Burlington House, has more or less evaporated, except for students of the mere facts and history of the art. Pictures of Holy Families have lost their original religious interest as such: and the mere conventional grace of some of these productions has become faded and commonplace. The Italian pictures of the year are in Gallery I.; and really the only pictures in that room that one would much care to possess are those which represent, not imaginary sacred personages, but real life and character; and, though placed with the Italian works, neither of them are by Italians; we mean Antonio More's portrait of himself, and Holbein's small and most remarkable portrait of a lady, with a head full of character, a costume equally so. This and the More portrait are full of interest because of their distinctive and strongly marked character and the vigour with which they are executed. Compared with More, the conventional prettiness of Perino del Vaga's "Virgin Child and St. John" has little attracting power, and this is one of the best of the Italian works of its class in the room; others, such as Andrea del Sarto's "Holy Family" and Bellini's "Toilet of Venus," are things no one can really take interest in except from the analytical point of view, as historical specimens; del Sarto's painting, indeed, is without charm either of composition or colour, though it is of course conscientiously finished. As to the so-called Raphael, we observe that others besides ourselves find a difficulty in accepting it as genuine; and at any rate it is only a work of mediocre interest. Mabuse's "Virgin and Child" has a distinct value in its carefully studied lines of composition. Lucidel's half-length portrait of a lady has a distinct interest from its individuality of style and treatment—the pale, delicately-tinted face and decoratively treated dress. More's portrait of a lady we should think had suffered cleaning and restoring; it is far behind his own portrait in vigour of style; the parrot is the best thing in it.

Gallery II., as usual of late years, is given up to the Dutch School; it is disappointing, except for one or two things. Hals's robust portrait of Ruyter is in his best way, and forms an interesting comparison with Vandyck's manner in a portrait of the same kind on the opposite wall. Of the smaller interiors with figures of the usual Dutch type the only one we can much care for is Jan Steen's "Grace before Meat," a painting in which there is not only conscientious execution but real feeling, of a kind one would hardly have expected from Jan Steen. Ostade's "Smokers" is no doubt a capital piece of composition, but one is reminded of Johnson's criticism on the art of mimicry—"it requires great talents, but it is putting them to a very low use." Jacob Ruysdael's two sea-pieces show the conventional inky sea, steely-grey in the sunlight, and a kind of artificial "popple" all over it, which one is familiar with in the works of Backhuysen and others, and which always reminds us of a theatre sea. Van der Vliet's large interior of a Dutch mediæval cathedral is a good clean piece of architectural painting of a prosaic order, and Haecht's hard and highly elaborated painting of the interior of a picture-gallery with a number of portraits is interesting as a curiosity.

But the fact is that these two first rooms contain a good many dull and uninteresting works, and suggest doubts as to the value of conventional Old-Masterism. The Italian Renaissance school at its height, and in the hands of its greatest masters, is the greatest of all schools of painting, but its minor masters and their subjects have very much lost their hold over us, except for purposes of historic study. The real glory of the present exhibition is to be found in Gallery III., and among the English XVIIIth century painters, who are splendidly represented. The three beautiful portraits of children on the north wall, by Reynolds, Raeburn, and Hoppner respectively, are worth more to us now than any of the more mediocre Italian paintings of Virgins and Holy Families. They represent their school at its best; nor does Hoppner, in this instance, yield the palm to the two more famous masters. And Lawrence, generally too fashionably conventional in his portraits, is represented this year by a work full of natural beauty and poetry, his charming full-length of a young girl standing in the open air with a wide sky behind her, like Tennyson's "Elaine":—

"Her bright hair blown about her serious face."

Lawrence was inspired when he painted this portrait of natural and rather wild-looking girlhood, or his sitter inspired him. But the room is full of fine portraits; one of the most interesting being that of Countess Spencer and her daughter, by Reynolds; the mother's countenance especially is a rare piece of beauty and character in expression. Even here, however, we must not allow ourselves to forget more modern art; Gainsborough's immense equestrian portrait of General Honywood is a monumental work in its way, but it must be admitted that the horse is somewhat too monumental; compare it in imagination with the horses in Furse's "Cubbing" picture, or in Regnault's "General Prim," and Gainsborough is nowhere in comparison. The Academy seem to have made rather a point of illustrating the Ruysdaels this year; Solomon Ruysdael's "Landscape" is a fine composition, with the oblique lines of the sky cut by the mass of trees rising in the centre of the picture; and Jacob Ruysdael's large "Waterfall," however obviously a piece of picture-making, is very effective in the play of light on the banks. But Gainsborough's beautiful "Harvest Cart" shows how he could be natural and learned in his art at the same time; the whole thing is as breezy and full of light and air as it could be, but the lines of the composition show the most carefully contrived result of the art which conceals art; the cart and the group of figures all fit into their place in the composition, all uniting with the foliage to give a kind of oblique "drive" of the main lines of the composition in one direction, from the top on the left hand to the lower level on the right hand; thus this is really a picture in the full sense of the word, not a mere transcript of nature. Among other landscapes are an unusually grim and heavy Canaletto of "The Grand Canal, Venice"; Venice without the sunlight—not a happy example of this very unequal painter; and Turner's "Mercury and Hersé," and the picture, in his later manner, of the burning of the Houses of Parliament in 1834, which is interesting chiefly for the very fine foreshortened view of old Westminster Bridge, lighted on the west side by the conflagration.

In Gallery IV. we find Wilkie's well-known "Chelsea Pensioners Reading the News of Waterloo," in which are two cavalry soldiers, one seated and the other on horseback, each with a right leg so

portentously long as to remind one of Fuseli's extravagances in this respect; and indeed as a whole it is not a work that an admirer of Wilkie would select as a favourable example of his powers. John Crome is full of surprises; and here in his picture, "The Beaters," is a treatment of the grey trunks of the trees which seems to forestall Diaz. Among the other noticeable things in the same room is Hogarth's sketch (for it is little more) of a picture to form the first of a series to be called "The Happy Marriage" (in contrast with "Mariage à la Mode"); Raeburn's fine portrait of "Mrs. Anderson," clad in white and seated in a crimson-covered chair; Hoppner's curious and clever half-length of "Viscountess Beauchamp," almost violent in colour, and unlike any Hoppner we remember to have seen, but a very original work; and two pictures, by Zoffany and Copley respectively, of the kind called "Family Scenes," and which are interesting in what may be called a social sense, if not very remarkable as pictures.

Gallery V. is a very interesting one. Here is illustrated the work of some of the able Scottish landscape painters of the early and middle XIXth century. Fraser, some of whose landscapes we drew attention to at the time of the Glasgow exhibition, is represented by two powerful though rather rugged landscapes, somewhat deficient in composition; Sam Bough's wild and stormy landscape, "St. Andrews," gives the best idea of his powers; and there is a very remarkable landscape by Wintour, a painter of about the same date, hitherto unknown to us, which as a matter of style might have been painted yesterday, and shows that Wintour had anticipated some modern effects in landscape. Then there is a small collection of some of the remarkable works of the late Mr. Charles, among which "The Chalk Pit" is a most powerful bit of foreground painting, and his "Reminiscence of Watteau" a perfectly beautiful work—a Watteau landscape with modern figures. All his pictures in this room are well worth attention. Among the other attractions are Linnell's "The Barley Field"; Lewis's "The Hareem"; and Leighton's "Gathering Citrons," one of the most charming of his earlier works. His long decorative picture "The Syracusan Bride," exhibited in 1866, is interesting as a forerunner of finer works of the same type, though it seems rather *passé* now.

Turner's early highly-coloured vignettes for book illustration, a number of which are collected in the water-colour room, are also hardly things to enhance Turner's fame now. The finest water-colour in the room is Collier's grand view of "Arundel Park," a kind of typical example of English water-colour art at its best. The special feature in the water-colour room is the series of profile portraits in pencil, by George Dance, of the contemporary Academicians of his day. They are disappointing, and create the impression that Dance lent to all the heads, unconsciously, a kind of type of his own; for certainly the general similarity of character of the heads is very remarkable, and suggests the idea that the Academicians of the day were all, or nearly all, members of the same family.

To turn now to the International Society at the New Gallery, some of the best productions to be seen are among the black-and-white work in the South Gallery, more especially Mesdag's coast and sea studies in chalk and in brush work; as fine in their way as anything of the kind could be. There is nothing else quite so good in this room; M. Legros' "Mort du Vagabond" and some other etchings of similar type are old works; Herr Max Klinger's street scenes with figures are powerful and dramatic; there is a fine figure study in sanguine by Puvis de Chavannes; and the idolatry of Whistler by which the Society is pervaded is absurdly illustrated by what is called in the catalogue "Old Battersea Bridge—Charcoal Drawing," a few rough lines sketched on brown paper, a thing which any one might have done who could hold a porte-crayon at all. The four small groups of sculpture exhibited by Mr. Ricketts in the same room seem somehow typical of the school of modern art represented in this exhibition; they all consist of figures twisted and contorted into awkward attitudes; a kind of straining after originality.

It is difficult to know what to say about the picture-shows in the other two rooms. There are some very clever works among a number that are mediocre, uninteresting, or in some cases (such as those already referred to) so defiantly and impudently bad that one can only shrug one's shoulders and pass on. In the West Gallery M. Besnard has what may be called a brilliant sketch portrait on a life-size scale; and the smaller portraits by M. Neven du Mont, on each side of it, have both beauty and character, especially the half-length of Mrs. Tatchell-Studley, dressed in furs which show very clever handling. Mr. Lavery paints a girl in white lying face down in a hammock, reading; the head is vivacious, but there seems something wrong about the figure; it is too short and not quite intelligible as to drawing. The best things in the room otherwise are landscapes, among which Mr. Walton, in "The Dykeside" and others, gives us light and fresh air in rather rugged compositions; Mr. Whitelaw Hamilton's "Pastoral" succeeds in that quality of composition which Mr. Walton's pictures want; Mr. Paterson's "Outwoods, Moniaive," charming as it is, is more suggestive of a French than of a Scottish landscape, with the bright but rather faint blue of the sky; and Mr. Bertram Priestman has made a really fine study of "A Wintry Sea," a picture with little detail made out, but the sweep of this cold and cruel-looking sea into the harbour is conveyed with remarkable power and reality—not realism, which is another thing altogether. Mr. Priestman's picture shows the possible poetry of landscape, M. Collet's "Côte Sauvage, Bretagne" shows its mere prose, a grim painting in which every possible element of beauty in the scene, the composition, or the colour, seem to be diligently avoided, with a result which must be seen to be appreciated. Such are the performances that are now dignified by the name of pictures.

In the North Room Mr. Strang exhibits a picture fine in colour and composition, which might be termed "a reminiscence of Giorgione"; the actual title is "Al Fresco," but it recalls memories of Giorgione's celebrated picture in the Louvre. The hideous work of Zuloaga, which people pretend to admire, is exhibited at its worst in "Le Vieux Marcheur." M. Blanche's life-size figure in the picture entitled "Venetian Glass" is happily less obtrusively ugly than usual, and there is some powerful painting in it. Mr. J. J. Shannon's "War," the heads of a brother and sister (one may suppose) grieving over the loss of a near relative in war, has the merit of being both fine in colour and pathetic in sentiment. M. Blanche's portrait of M. Debussy is forcible and characteristic though not attractive. In "Matinée de Septembre" M. Emile Claus, a painter of the school which sees colour rather than the deprivation of it in shadows, has produced a real effect of misty sunlight. A small collection of the pictures of Thaulow is interesting and pleasant to see; here at all events there is nature treated in an artistic manner. His "Lendemain de Fête" is a very clever snow effect, apparently in a garden in which it has snowed the night after the "fête," and the remains of the Chinese lanterns depending from a tree in the foreground furnish effective spots of colour against the snow. But the things from which one can get any enjoyment in this room are in a minority; eccentricity and ugliness pervade it.

The sculpture includes no work of real importance, for we cannot consider M. Lambeaux' colossal and brutal group entitled "Murder" as remarkable for anything but its size. M. Roden has three busts, one of them, that of a man, curiously treated with a much larger proportion of the nude torso than is generally seen with a bust portrait, and the effect is not happy, though the head has firmness and character. Prince Troubetzkoy's various realistic statuettes have vigour and energy, as well as his ungainly life-size portrait of a man seated; but the beauty of pure form in sculpture is only to be found in some of the smaller works, such as Mr. Stirling Lee's low-relief portrait of a lady, and his "Lydia," M. Desbois' "Femme à l'Arc" (which we fancy we have seen before on a larger scale), and Mr. Dressler's "Femme à la Pomme," a statuette of a nude figure stooping to pick up an apple. M. Maillol's life-size nude in plaster, "Jeune Fille au Soleil," is a life-size figure, and that is all, it has no beauty of form or sentiment. The sculpture is in fact a mixed collection in which there are a good many curiosities and not many beauties.

The natural reflection on going from Burlington House to the New Gallery would perhaps be—No man having seen the older art straightway desireth the new; for he saith, "the old is better."

MORE DIARIES.—"The Newsagents' Booksellers', and Stationers' Diary for 1907," published by Messrs. W. Holmes & Co., Ltd., Mitchell-lane, Glasgow, is a useful diary specially arranged for newsagents and others. It has three days to a page, and is interleaved with blotting-paper. The price is 2s. 6d.—Messrs. Bemrose & Sons, Ltd., Snow Hill, London, have sent us their monthly diary—a neat little diary divided into twelve parts for convenience in carrying. The price is 1s.

THE REMAINS OF OUR TOWN WALLS AND THEIR TOWERS.

NEWCASTLE-UPON-TYNE is setting a most excellent example in the matter of the preservation and conservation of the remains of the ancient walls and towers that once defended it from all comers. The Finance Committee of the Corporation appointed a sub-committee to make a survey of all that is left of these old fortifications, and this deputed body has now completed that task and presented their Report to those who delegated them to make it. This contained a recommendation that, as a coroner's court with a mortuary is now a necessity that must be provided, the Sally port tower should be used for the purpose. A new court and mortuary, they urged would cost about 1,200*l*., whilst this appropriation could be made suitable for the requirements for the smaller expenditure of 358*l*. The sub-committee ascertained, moreover, that certain guilds and companies claiming portions of the walls, especially those on the west side, were willing to transfer the ownership to the Corporation for 1,100*l*. The Plummer tower is under a cloud of possibility that its demolition may be insisted upon for a contemplated extension of Market-street; but ten votes to two determined that negotiations concerning it might be renewed by the Corporation, if considered desirable. The report recommended, further, that a sculptor's yard adjoining the grand old Black Gate should be laid out as a shrubbery. It is pleasant to see and to know that the Corporation is aware of the exceeding interest of these works before it is too late. The story goes that one day, in the reign of Edward I., a party of Scots rode into the town and carried off one of the principal inhabitants, and the wall was built to prevent the successful issue of any similar raid. It was about two miles in circumference, and had seven gateways and many towers. It was 20 ft. high in places and 8 ft. thick. On one of the gateways it was customary to expose the heads and quarters of those who were executed for treason, and among those placed here was a quarter of the body of the renowned Hotspur. The other quarters were placed at Berwick-on-Tweed, York, and Lincoln. His head was displayed on London Bridge. After four months, it may be added, a writ was issued that his remains should be delivered for holy sepulchre.

Berwick-upon-Tweed was recently in great danger of losing part of its valuable possessions in the way of olden fortifications. Under the impression that the site of some portion of the ancient walls could be economically used for the erection of dwelling-houses, there was a serious intention to demolish as much as was required for this purpose, till those in charge were awakened to a sense of the irreparable mistake that would be made by the outcry that greeted the proposal on all sides. These walls measure $1\frac{1}{4}$ miles and 272 yds. in circumference; and they had four gateways, three of which remain, Shoregate, Cowgate, and Bridgegate, with their gates and massive fastenings. The Edwardian walls were considered to have been 2 miles or more in extent, and had nineteen towers, and were 20 ft. high. The greater portion of those now left us are of Elizabethan age. They are faced with strong stonework, and kept in good order. The top of them forms a fine promenade encircling the town. All the Edwardian walls that had seen Edward I. and Edward III., and Bruce, Wallace, the Percies and the Douglases, were not altogether destroyed, but in places repaired and left for our appreciation.

York and Chester still possess their walls fairly intact. York has four gateways and several posterns. Two of the gateways display the arms of France as well as those of England, telling of the time when the Kings of England claimed to be Kings of France likewise. Mickelgate Bar was the one chosen for the exposure of the heads and limbs of traitors. The tops of the walls make an interesting walk, whence there are views of the noble minster, the fine city, the river, and the surrounding country.

The Chester walls are as silver-grey and in as good repair, and the tops of them are paved and used as a promenade. They average 12 ft. high, and measure rather more than $1\frac{3}{4}$ miles in extent. There are four gateways, one of which crossed England from Dover. Dr. Johnson, it may be remembered, compared these walls favourably with those at Shrewsbury, which he remarked were broken and narrower. No one looks upon them now without being reminded that Charles I. viewed the fortunes of a battle from them that was not a victory for him.

Conway has also preserved its walls in a manner to be approved, notwithstanding the close approach of the railway. It is $1\frac{1}{4}$ miles in circumference and 12 ft. high, and has twenty-one semicircular towers and three gateways with towers. On the top runs a pleasant walk. This defence was erected by Edward I., who also encircled Carnarvon and Beaumaris with walls. There were many walled towns on the Welsh border, as at Ludlow, Hereford, Chepstow, and Monmouth, as well as at Carmarthen, Montgomery, and Tenby. The name of the master mason of Carnarvon wall is known to have been Henry le Elreton. Much of his work is still in good preservation. It has two gateways and several round towers. The Beaumaris wall is no longer in evidence.

Not only did our predecessors wall their towns on the Scottish and Welsh borders, but they fortified those in the counties facing France. Canterbury and Rochester both had walls, as had some of the Cinque ports. The first-mentioned had six gates, of which one only, Westgate, has been preserved. London had a magnificent wall with many gates, and it is interesting to learn from the books of the Corporation that Geoffrey Chaucer had a lease of one of them—Aldgate—and undertook to live in it himself and keep it in repair. There came, however, a day when, being no longer required for protection, they were considered unsanitary and undesirable. But before that awakening the part played by some of them in Cromwellian times brought about their demolition: Coventry, for instance, in the days of Charles II., paid the penalty of the destruction of its walls for holding out against Charles I., when Dugdale with "a trumpet" demanded its surrender.

The gateways were eventually considered a hindrance to traffic. In our own day a hay-cart with too high a load has had to be sometimes partly unladen before it could pass through, or a caravan has had to take a roundabout way to enter a town, and there has been an outcry for the removal of the obstruction; and we may conclude that public opinion has moved in the same groove before. We read in old letters and diaries of their condition occasionally. Dora Wordsworth mentions that the walls of Carlisle when she and her brother and Coleridge walked upon them "were broken and crumbling away and most disgusting from filth." Pepys tells us he walked upon the walls at Portsmouth, and on those at Southampton. This last place he mentions as "one gallant street" walled round with stone, and states that Bevis's picture was upon one of the gates; but he does not record that the walls were not kept clean. Macaulay relates that he walked four times on the walls of Londonderry (there were several walled towns in Ireland as well as in Scotland); and George Eliot mentions seeing the fragments of the wall round Oxford that William of Wykeham agreed to keep in repair; and neither made complaint of their condition. Nevertheless, they were removed in a large number of instances. Sometimes the wall was taken down and the gates left; and in other instances the gates were removed and the wall, or fragments of it, left.

The gateways were occasionally made use of as places of detention. In Alnwick, one of them, was used as a poorhouse, and another as a prison. Some of the London City gates remained till 1760. Temple Bar spanned Fleet-street till our own day. In times of danger they were not only closed, but watched. The books of the Corporation of London have minute particulars of this arrangement. They tell that two men kept the City gates by day, and at night six kept watch and ward. The different trade companies furnished the requisite number of men in turn. When attack was expected many men-at-arms and archers were at hand. The books, too, kept by churchwardens in old times record money given towards the repair of their respective town walls; and in a church in Canterbury there is an inscription on a former mayor's monument to the effect that he gave twenty marks to repair the walls of the "cete." There is word of a tragedy connected with the Southgate in Exeter. It was left open one night, and a precentor was killed. As the assassin escaped, the mayor and the porter were hanged on account of their negligence having contributed to the miscarriage of justice.

Thinking of the gallantry displayed upon the walls by those who held them and by those who besieged them, also of the associations of the gateways (Cranmer, Ridley, and Latimer were prisoned in Northgate, Oxford, for instance), the few that are left appear to be well worthy of our care.

S. W.

NOTES.

The Channel Tunnel.

IRRESPECTIVE of political considerations and the absence of direct proof that the geological conditions are such as to make possible the construction of a tunnel between England and France, the scheme put forward in the Bill before Parliament is not free from technical objections. One of these is the exceedingly steep maximum gradient of 1 in 54·8 of the approach railway, which is nearly three miles long. More severe gradients are certainly to be found, as, for instance, on the Mont Cenis line and the approach to the Prince of Wales' Pier, Dover. But the gradients now proposed, taken in conjunction with the length of the approach, are unparalleled in railway engineering and cannot be regarded as satisfactory for heavy and continuous traffic. Another point is the impossibility of making periodical tests of the devices suggested for the purpose of destroying or rendering the tunnel useless in case of threatened invasion, and the uncertainty whether these safeguards would be utilised at the proper time should danger arise. Moreover, we do not think that timid people who dread the idea of a short sea trip would be free from anxiety in a tunnel where they might be blown up, drowned, or asphyxiated at any moment in the event of some mishap or false alarm.

Counter-Picketing.

A SOCIETY — the Labour Protection Association—has issued a circular to employers' associations throughout the country offering at short notice to supply an adequate number of men who have served in the naval, military, or police forces to watch and counter-picket any premises which are being picketed by the agents and emissaries of the trade unions. The circular states that "the association would thus safeguard the property and person of all who may be in fear of the ruffianism, brutality, and terrorism—humorously and now by statute called 'peaceful persuasion'—which so often characterise the methods of trade unionism in enforcing its demands and furthering its ends." Although the Legislature must have seen what in the event of strikes would be the inevitable result of the freedom from legal responsibility granted to the unions, we much regret that any association claiming to represent the employers should have taken the initiative and have issued a circular so intemperately worded. Nor can any such body legally "safeguard" the interests of those affected. If peaceful persuasion is carried on within the letter of the Trades Disputes Act, any interference by an independent body will be illegal and will prejudice the employers' cause in the public estimation. If the "peaceful persuasion" is carried out in a manner contrary to the Act, then the law is available to those suffering injury. We trust that employers will not meet force by force, but that they will give the unions plenty of rope, as this is the only dignified and assured manner of obtaining at an early date a modification in the law.

Compensation for not Working Mines.

A POINT of some interest has recently been decided by the Court of Appeal in the case of James Joicey & Co., Ltd., and the Exors. of S. A. Eden *v.* North-Eastern Railway Company on compensation under the Railway Clauses Consolidation Act, 1845. Sect. 78 of this Act, where mines lie under land upon which the railway is constructed, requires the owner, lessee, or occupier of the mines, before working minerals under the railway, to give notice to the railway company, and not to work the minerals if the railway company "be willing to make compensation for such mines or any part thereof." In this case the claimants were a colliery company holding certain mines on a lease of twenty-one years from 1886, and their lessors, who claimed compensation in respect of certain coal which in 1892 they desired to work under the railway company's works. The question was, What was the measure of compensation to be applied? The learned judge in the Court below assessed the compensation on the basis of the profit which would have resulted from working the coal which had to be left unworked. This gave the lessees 730*l*., the lessors 155*l*. The Court of Appeal proceeded on an entirely different principle. As there was other coal which the colliery company could work, and as in any event in the period demised by the lease the colliery company could not work out the whole of the coal, they assessed the compensation as the increased cost of getting at and working coal more difficult of access. This reduced the colliery company's compensation to 100*l*., the lessors receiving 310*l*. It is difficult to see any satisfactory principle in either point of view. Possibly the business man would have assessed the compensation on the difference in the profit, instead of the difference in the working expenses.

Railway Companies and Rebates.

IT would hardly have been worth while making any allusion here to the "combine" among the railway companies but for the startling statements evolved from the original announcement. The latter related to a working arrangement between the companies serving Liverpool, aiming at the reduction of the expenses connected with collecting, delivery, canvassing, etc., by substituting combination for competition. This will naturally involve the withdrawal of certain inducements hitherto offered by canvassers, but startling headlines such as "Rebates Abolished" are calculated to alarm those of our readers who receive, and are justly entitled to receive, these allowances. We take it, however, that the companies do not contemplate discontinuing to allow what may be termed "earned" rebates, or any similar allowance justly due to traders under exceptional circumstances. Where competition is very keen, as at Liverpool, secret rebates and unearned allowances have been made by agents and canvassers to induce freighters to adopt their particular route. These take various forms—some of which probably are now positively illegal—and one result of their abolition will be the removal of an undue preference enjoyed by the recipients to the disadvantage of other traders. That this is not going to be accomplished without difficulty the companies have been quick to recognise, having already arranged for dealing with evasions of the agreement. And, while the danger that successful combination may eventually work to the disadvantage of traders generally is not to be disputed, there is, so far, no ground for undue alarm.

London Electric Power Bills.

FOUR electric power Bills dealing with London will come before Parliament this year, and it is highly probable that a definite decision will be reached. The Administrative County of London Company's Bill has been considerably altered. It is contingent on the success of the London County Council Bill, as the company now merely ask for permission to enter into agreements with the County Council relative to the electric supply of London. In our opinion, this is a very politic move on the part of the company. In the Bill brought in by the London County Council the proposal is made that the powers of the local authorities be transferred to the Council, and also that further supply stations be erected. The capital expenditure is estimated at 4,500,000*l*. A clause of the Bill that is being criticised by electricians empowers the Council to spend money on *wiring* and fitting up motors and electrical apparatus on consumer's premises. It has to be remembered, however, that this right is already possessed by many local authorities. The retail price of energy is to be 5 guineas per annum, together with a meter charge of three-tenths of a penny per unit. Hence the fixed charge per horse-power per day is a little over 2·5d., and thus if a motor be run for more than five hours per day the charge will be under a penny per unit, the average price decreasing the greater the demand. The most formidable rival scheme to that of the County Council is set forth in the "London Electric Supply" Bill. Power is sought to amalgamate fourteen of the present supply companies, and a "joint committee" will be formed to take over and control the works of the supply companies. Powers are also asked for raising new capital. This scheme is influentially supported, and a point in its favour is that it could be carried through with the minimum amount of disturbance of existing arrangements. In the event of the present law being repealed, they ask that the purchase of the London companies' undertakings should be deferred until 1949. Considering the rate at which changes in methods of lighting and power distribution are taking place, it seems to us that it would be an extremely difficult matter to legislate for the supply of electric power to the ratepayers of London forty-two years in advance. The fourth Bill is introduced by the "London and District Electric Power Company," and is very similar to that introduced by the Administrative Company last year.

City Fires.

THE City Coroner held two inquests on Saturday last on fires which had occurred on premises where printing and

publishing were carried on. The coroner informed the jury that since the City of London Fire Inquests Act of 1888 he had held twenty-eight inquests on fires, and that the cause of the outbreaks had been ascertained in half the inquiries so held. In both the cases now inquired into the cause of the fire was attributed to spontaneous combustion of waste-paper and oily rags, and Colonel Fox, the Chief of the London Salvage Corps, expressed his belief that half the fires in London, the cause of which was returned as unknown, were probably attributable to the same cause. In the fire at 32, Bouverie-street the waste-paper and rags were placed in a canvas bag, and the jury returned a recommendation that in future all greasy rags should be placed in an iron box and a supply of sand be available. In the case of the fire at the offices of *Punch*, however, the evidence showed that the rags were kept in tins and sand was kept upon the premises, and therefore it would appear that the recommendation in the first case would not suffice to ensure security. The immediate burning of the rags in small quantities before they accumulate would seem to be a more efficient remedy.

King's Theatre, Sunderland.

THIS building, which has recently been completed within the short period of six months, furnishes an example of the facilities offered by reinforced concrete for construction of a kind that would be impossible with ordinary materials and very costly in steel. The feature illustrating this point is to be found in the application of the Hennebique ferro-concrete system to the design of the circles and cantilever balconies throughout the building, thus obviating the necessity for columns in positions where they would obstruct the view of spectators. From a report of the official tests conducted by the Borough Engineer of Sunderland it appears that the rigidity and elastic strength of the reinforced concrete work was everything that could be desired. The gallery of the theatre was tested by placing on every seat a load of 182 lb., equal to a total weight of about 81 tons, deflection being carefully measured by six instruments beneath two main beams, each of 60 ft. clear span, and a seventh instrument below the outer edge of the cantilever gallery. The maximum deflections at the centres of the two beams were 0·094 in. and 0·106 in. respectively, while the deflection of the cantilever was too small for a reading to be taken. Similar tests showed the maximum deflections of two 60 ft. beams supporting the circle to be only 0·098 in. as compared with the contract allowance of 1·2 in., and the deflection of the cantilever balcony to be 0·019 in. as against the allowance of 0·25 in. A still more severe test was made by removing the load from the back part of the circle and placing the weight of 336 lb. upon every seat of the cantilever projection. Notwithstanding the heavy unbalanced strains so produced, the maximum deflection of the balcony was only 0·042 in., or about one-sixth of the permissible deflection. The theatre was designed by Mr. William Hope, F.R.I.B.A., of Newcastle-on-Tyne, and Mr. L. G. Mouchel, M.Soc.C.E. (France), acting as consulting engineer for the reinforced concrete construction.

The Society of Fine Arts.

AT the Gallery of the Society of Fine Arts there is a collection of water-colour drawings and two oil-paintings by Mr. Albert Goodwin; an announcement which is always the promise of a great pleasure. One of the oil-paintings, which has been seen at the Royal Academy, is the "Dawn in the Pilgrims' Road," one of the pictures suggested by Bunyan's allegory, and a fine piece of imaginary effect, though the dimly-seen flying arches across the scene do a little suggest, as we remarked at the time of its first exhibition, a kind of celestial railway-station on a stupendous scale. The water-colour drawings represent not, like the picture just named, spiritual scenes made real, but real scenes made spiritual; treated with that delicately-finished art which makes them in some cases not so much representations as visions of the scene. The very first one, "Dover Castle" (1) is a beautiful example of this delicate and subtle handling, in which one feature in the picture seems imperceptibly to melt into another. "Westminster" (2) is a contrast; it is Westminster towers seen in a lurid twilight after a stormy sunset. At "The Gorge of the Teign" (4) we come to pure landscape composition, in this sense one of the best in the collection. One of the striking points about a collection of Mr. Goodwin's water-colours is their great variety; there is nothing of the repetition of the same effects which we often find in what the French call an "exposition particulier." We are shown Cairo (20) with the mosque white in a gleam of light on the hill; Siena sparkling in the sunlight; Lichfield Spires (28) dark against a twilight sky; Verona (48) seen from tops of the houses; St. John's, Westminster (42) seen in sharp perspective as the foreground object in a night effect. There is a large oil-painting, too, of Lichfield, with the three spires reflected in the pond in the foreground. Among the landscapes we like "May Moon, Nunney" (47), a most delicate drawing, and "Beachy Head" (67), and "Corfe Castle" and "Whitby" (80, 85), the latter a view of the place that is not familiar. "The Ship-breaker's Yard" (32) and "The Outward Bound" have an interest of another kind.; the Outward Bound is an admirable ship or dock picture, only we should rather like to know if the ship's hull was really white (not a common colour for English ships), or was it left so for purposes of effect? Every drawing is worth looking at.

Miss Ruth Dollman's Drawings.

THE last sentence may be repeated in regard to the "Drawings of the South Downs" by Miss Ruth Dollman, on view at the Leicester Gallery. The first exhibition of this lady's drawings showed that she promised to be one of the best landscape artists in water-colour of the day, and this exhibition fully confirms her position. What water-colour can best effect in landscape is shown in these beautifully composed drawings, with their tender skies and delicate distances. There is not one failure among them; the only distinction that one can make is that some are even better than others. Among these we may specially mention "Sunrise at the Pit" (10), with the vertical bank where the chalk has been cut taking a delicate warm tone in the sunrise light; "Homeward" (14); "The Haunt of the Butterflies" (23), with its carefully studied foreground and delicate phases of distance; "The Gleam" (43) in a stormy sky; "Sunset at the Pit" (46); "Noonday Heat" (48); and perhaps best of all "Where the Blue Scabious Grows" (34), a most effective piece of landscape composition on rather unusual lines. It is a real pleasure to look through such a collection of water-colours.

Mr. C. H. Shannon's Exhibition.

AT the Leicester Gallery is also a collection of fifteen paintings by Mr. C. H. Shannon, the catalogue of which is prefaced by one of those pieces of barefaced puffing which, if artists and gallery proprietors only knew it, tends to anything but the advantage of the artist exhibiting. To be told, in the closing sentence of this preface, that "We may look round Europe at the present moment, and among all the varied, immense, and strenuous effort of the painters, find nothing, of the like aim and scope, to compare with Mr. Shannon's art, nothing so fresh and native in its beauty, or imaginatively so coherent and complete," and this by a critic who is probably a personal friend of the painter, is a kind of thing which may influence the ignorant public, but is only likely to provoke resentment in the minds of those better informed. And it is certainly not true. Mr. Shannon has made a choice of painting subjects chiefly of idealised nude figures with poetic and fanciful titles, and his aim is no doubt high, and he has a fine feeling for colour; but these pictures are not good enough for what they profess to aim at. Ideal nudes cannot be run off the reel by the dozen; it is a kind of subject which demands perfection of execution and beauty of design, and most of these figures are not beautiful or learned; they are what we call "flabby" figures; they may intend to be very poetic, but they do not succeed in their aim; and when the author of the catalogue sounds these extravagant laudations over them, one is tempted to ask if he ever heard of M. Chabas or M. Raphaël Collin. In fact, the strongest painting in the collection is one of the two realistic ones, "The Lady with a Feather," a lady in a black dress and lace seated in a room; the pose is rather awkward, but the head is a powerful and original piece of expression. The "ideals" are more like large sketches in colour, and, as observed, they represent a kind of subject which, if treated at all, demands much more conscientious treatment than this.

The Threatened Wilfrid Lawson Fountain.

WE say "threatened" because, from an artistic point of view, this proposed universal fountain design to the memory of Sir Wilfrid Lawson does threaten to be a rather serious infliction. We read in the papers that a gentleman interested in the promotion of the movement,

but who is neither an architect nor a sculptor, "has designed" a fountain to be executed in granite, and to be placed wherever opportunity can be found all over the country. We can imagine what kind of thing this is likely to be, and we hope those who are invited to subscribe will refuse to do so until a design is made by an artist. We admit that Sir Wilfrid Lawson, who, like most social *doctrinaires*, seems to have been totally indifferent to art, would have cared nothing about the design of the drinking fountain provided there was nothing stronger than water in it; but those who care at all about the artistic aspect of life must look with some anxiety on the proposal to inflict on us a series of fountains on one pattern which will be only too likely to contribute to the disfigurement rather than to the decoration of our streets.*

MAGAZINES AND REVIEWS.

THE *Art Journal* devotes its first article to "The Donegal Highlands." The important part of the article lies in the numerous fine illustrations by Mr. W. Monk which accompany it. The frontispiece to the number is a reproduction of an etching of Glen Veagh by the ame artist. The picture of the abandoned "Doe Castle," with its lofty and massive keep pierced with arrow-slits, is particularly effective. We should surmise that the article was written to accompany the illustrations. An article on "The Romance of the Spoon," by Mr. Avery Keddell, serves as occasion for a number of spoon illustrations, including a sheet of "fifty-four English Tea-caddy spoons," mostly of the XVIIIth century. Nearly all these are short and wide spoons, mostly with short handles; they show an interesting variety of design. Thus we see how the introduction of the tea-drinking habit into England had its effect in calling forth a special form of spoon design. It is noticeable that in the illustrations of nine very graceful spoons of the XIVth, XVth, and XVIth centuries, while the design of the handles is varied, the bowls are all of nearly the same shape, narrow at the junction with the handle and broad at the end; a much more practical shape than that of the modern type of spoon, in which the bowl is broad at the handle and narrow at the outer lip. Mr. Dudley contributes an article on "Some rare Miniature Portraits in Oil."

The *Burlington Magazine* contains an article by Mr. Minty, F.R.I.B.A., on "London's New Public Buildings" prefaced by an introductory note on the same subject by the editor, which might have been better omitted, for it is not very sound or well-balanced criticism; and we do not think that many of our readers will agree that "the palatial edifice of Messrs. Waring has qualities of beauty and dignity which are painfully lacking in the large public buildings" recently erected. The fault of Messrs. Waring's building is that it is too restless with florid ornament. Nor does the Natural History Museum deserve to be called "a climax of ugliness." It is the fashion in the æsthetic world at present to attack everything that Waterhouse produced. The Natural History Museum is at all events original architecture. Mr. Minty's article is more moderate in tone; some of his criticisms, on points of detail especially, are good; and we are glad to see that he condemns strongly the spoliation of Brydon's design by the Office of Works, by omitting one of the two towers (on a most inadequate plea), and thus depriving the building, as it would be seen from St. James's Park, of its architectural dignity and symmetry. We strongly suspect that economy was the real motive for this treatment, in spite of Government disclaimers. In regard to the War Office, Mr. Minty condemns the long, straight unrelieved skyline of this and the Science Schools at South Kensington, perhaps with reason; but in respect of the War Office what we have always felt is, not that the design is defective in itself—for taken as a whole and in its own style it is a fine and dignified exterior—but that it is the wrong kind of architecture. We should have liked to see it not diversified with a classic order, but with something of a stern and fortress-like character which would symbolise war. The Government, however, probably would not have had that; they were evidently (from the nature of their reference to the Institute to recommen them architects) predetermined on a classic building. But an architect of genius, given a free hand, might have made something very fine out of the fortress ideal. "The Landscape of Harpignies" is the interesting subject of a critical article by Mr. C. J. Holmes. He is particularly just in what he says as to the "austerity" of Harpignies: "The softer and more vaporous masses of other landscape-painters may charm and soothe us, as the senses are soothed by soft music. But the nobler qualities of the soul cannot be moved by these Lydian strains. Thus far we must turn to the Dorian mood, and it is in this mood that the landscapes of Harpignies are cast." We quite agree with the intent of this, though we fancy that either the author or the printer has made some confusion between "Dorian mood" and "Dorian mode," the latter being the correct expression. In his treatment of trees, or of tree-trunks at all events, Harpignies is a little bit of a mannerist; we know his tree-trunks at once; but in the main he is a grand landscape-painter with a noble style.

The *Berliner Architecturwelt* contains an interesting article on the future of the Brandenburg Gate of Berlin, which is creating an agitation somewhat similar to that perennially caused by our own Marble Arch. The Brandenburg Gate was illustrated in the *Builder* of January 5. It occupies the centre of the west side of the Pariser Platz, opening into the Tier-Garten, and it is now threatened by the two modern watch-words, "Isolation of Monuments" and "Congestion of Traffic." The setting of the gateway is not very successful, surrounded as it is chiefly by third-rate buildings; still their moderate height renders them comparatively innocuous. One suggestion is that the neighbouring houses should be pulled down to allow the gateway to stand clear; but this would be no improvement. If the guard-houses remained, considerable additions would have to be made in order to account for their projection from the plane of the actual gateway; and if the guard-houses were removed, the monument itself would be reduced to such small dimensions that it would be overweighted by the immense square beside it. The fact must not be overlooked that the Brandenburg Gate is not a mere setting for the sculpture which surmounts it; it is not a triumphal arch of the Roman type. It is an architectural treatment of the entrance to the Tier-Garten from the Pariser Platz; and this idea would be quite lost sight of if the gateway were to stand clear of the neighbouring buildings. As far as the traffic is concerned, it might be possible to provide for it by cutting new openings through some of the neighbouring houses, though this would have to be done carefully, so as not to distract the eye from the main gateway. The *Academie des Bauwesens* suggests a competition to solve the æsthetic and practical considerations, and hopes that a means may thus be found of combining greater facilities for traffic with a finer architectural setting of one of the few important monuments of the XVIIIth century. The illustrations to the number are very varied, and include, among others, designs for two villas, a church, and the laying-out of a large recreation-ground. The latter seems intended for games of various kinds, and is well provided with club-houses. etc. The usual German galleries give the church a heavy outline, hardly redeemed by a bold tower. The villas of Bruno Moehring show traces of more careful planning than is frequent in foreign work, and some of the internal decoration is interesting.

The *Architects' and Builders' Magazine* (New York) contains an article of considerable interest under the title "Revolutionary Ideas in Stable Architecture," being an account of the planning and construction of an immense stable building or "horse hotel" in New York, with an auction mart adjoining; the Fiss, Doerr, and Carroll stables, of which Messrs. Horgan & Slattery are the architects. The building is of course) of steel skeleton construction. We quote a portion of the description:—

"The beams and girders are all protected with a 2-in. cover of cinder concrete.

The basement and first story interior columns are protected with brick, common red and enamel respectively. All wall columns throughout the structure are encased in brick. All interior partitions, stairway wells, and elevator shafts are constructed of fireproof brick, with plaster on both sides.

The basement, which is used entirely for stabling purposes (see plan), contains the tank room, an ejector for conveying refuse to the sewer, boiler rooms, and the mechanism of the two large freight elevators. One of these, with a load capacity of 10,000 lb., passes through the building to the top floor. The other, of dimensions 10 ft. 6 in. by 21 ft. 6 in., and capable of carrying 14,000 lb., rises to the roof.

In the basement are box stalls and a continuous manger for auction horses. Three large runways, each 8 ft. 3 in. wide, with a pitch of 4 in. in 12 in., lead hither, one from Twenty-fifth-street, the others from the arena of the auction market.

The first floor is divided into the sales and coach-horse departments. It also contains the general offices, banking room, offices of the President and Treasurer, telephone and telegraph rooms, ladies' and salesmen's rooms, which are fitted with all modern improvements.

On the second floor are the carriage and harness departments. There are no partitions of any sort, except those enclosing elevators, stairways, toilet, and bathrooms, etc.

The third, fourth, and fifth floors are devoted to the storage of carriages, and are without partitions.

The sixth floor consists of the repair shops for carriages and harness, and of storage rooms for hay, oats, and fodder generally.

The seventh floor is occupied exclusively by the hospital. Here are large box stalls, rooms for pharmacy and ice storage, an operating table, and a soaking tank.

A steel runway leads to the roof, where are facilities for shower baths, and an exercising ring. The roof is paved with bricks laid on edge, and thoroughly grouted.

The stables are fitted with specially designed stalls, wainscotted in selected Georgia pine, finished in hard oil, and provided with over-wainscot guards of wrought iron. The stall posts are of cast iron, with bronze caps and tops, and are finished in dull maroon. All trimmings of box stalls, such as hitching-rings, locks, hinges, etc., are of bronze. Steel kick-plates, with rounded corners and edges, protect the wooden stall partitions from injury.

By the owners' express direction, the floors of all stalls and aisles are of wood. Sanitary conditions are maintained by laying the floors in hot asphalt, and filling the joints. The floors are then machine-surfaced, and finished in oil."

As far as we can understand the last sentence, we should have surmised that the wooden stall-floors, laid as described, would be rather in danger of dry-rot, unless the benevolent weed which produces that disease is unknown in America. The exercising-ground on the roof is a fine idea. As far as we observe, there is no description of the extensive and specially constructed lifts which must be required for working this system.

The *Contemporary* contains a long article by Mr. L. March Phillipps on "Santa Sophia," a very well-written critical article, in which he sums up Santa Sophia as representing the expression of the Greek mind on the Roman arch; changing it from a mere piece of scenery, or a half-accepted feature quarrelling with trabeated construction, into the actual structural motive of the whole building. There is nothing new to students of architecture, of course, in this view, but it is a good kind of article to have in a periodical for general reading, where sound architectural criticism is not very common. In the same issue of the *Contemporary* Mr. Arthur P. Nicholson writes a short article on "Manet and Monet." We are almost sick of seeing these names slung about by the modern apostles of Impressionism, as if there were no sort of landscape-painting but Monet's, but Mr. Nicholson is not quite a blind adulator, and can see both sides of the subject, and can even admit that Monet was not the first person to see colour in shadow. Monet, however, overdid it; and the real reason of the heavy and dull appearance of many of his scenes which are intended to appear bathed in sunlight, is that he put so much colour into his shadows that there was no contrast to bring out the sunlight. Painters who try to work on that principle forget that there is no positive or radiating light in a picture; there is only absence of dark, and brightness

*Since the above Note was written, we see a paragraph in the papers from which it appears that a design has been selected in competition, so that possibly something better is intended: but the selection has not been made by an artist, as it should have been.

Sculpture Relief on a School Building in Berlin. By Herr Lederer.

can only be attained by contrast with the dark of shadows. In Nature there would be more detail and more colour in the shadows, no doubt, but then there would be positive light to set against it.

The January supplement of the *Berliner Architekturwelt*, under the title *Berliner Kunst*, is devoted to the works of a German sculptor, Herr Hugo Lederer, of whom we confess that we know little, and whose work seems to be worth knowing. Like some other German sculptors, he is rather disposed towards mystical and allegorical subjects, which he treats in a grand and broad manner; his statue of "Destiny," dragging along two mortals in her irresistible path, is impressive if somewhat far-fetched; the seated figure "Charity," forming one of the illustrations, is a good example of broad sculpturesque treatment of drapery. His great work has been, apparently, the colossal statue which crowns the monument to Bismarck at Hamburg; the architectural portion of this monument is more remarkable for mass and scale than for architectural character, but the figure is fine; in the light of latter-day revelations, we might think, perhaps, too fine for the subject. We give as an example of Herr Lederer's work a part of the pretty and naturalistic frieze executed for a national school, not because it represents him at his best, but because, from its simplicity of line and rather large scale, it is best suited for reproducing in a block to print with the text. We may be able to give some illustrations of his more se[illegible]ork in another form.

In the *National Review* "Ignotus" writes a short and forcible article on "The Risks of the Channel Tunnel," with most of which we are quite in concurrence. But when he says that a bridge (if anything) would be preferable to a tunnel, and that "modern engineering skill is quite equal to the contruction of such a bridge," we ask the question we have asked before in the same connexion—whether the people who propose such a scheme have thought for a moment of the risks to navigation, in a particularly stormy sea, of placing what, from the navigator's point of view, would be a series of reefs across the Channel, at very short distances, for ships to be driven on or wrecked on in a gale, or to run into in a fog? It is a preposterous idea from such a point of view. As to the capacity of modern engineering to carry out such a work, no doubt modern engineering can do anything if money enough is provided; but what about the cost of building a whole series of towers, founded securely in deep water, and high enough to carry a bridge above the masts of the largest ships? Financially, the thing could not be done; it would cost a great deal more than a tunnel.

The *Century* contains an article by Mrs. Pennell on Chartres Cathedral, illustrated, of course, by drawings by Mr. Pennell. These form the chief value of the article, which is, however, pleasantly and picturesquely written. The number contains an illustration of a really beautiful group portrait of a mother and children, by an American painter, Mr. W. Funk; one cannot tell, of course, what the colour is like, but in spirit and design the work seems not unworthy of Gainsborough, by whom we should think it was inspired. Mr. Timothy Cole contributes a beautiful wood engraving of Murillo's charming but sentimental "St. John the Baptist," as a child in the wilderness. Mr. Sylvester Baxter contributes an article on "The Nuisances of Advertising," with (as he says) "suggestions of better methods"; in respect of which we can only say that if the usual open-air and landscape advertisements in the United States are worse than his "better methods," they must represent a depth of vandalism lower than we have ever yet known or imagined. In England his "better methods" would receive the most scathing denunciations of "Scapa."

In *Scribner* Mr. F. C. Howe writes on "The American and the British City—a Comparison." It is rather amusing in its tone of glorification over the blessings of democracy and lament on the way in which English institutions are supposed to be overridden and managed by "the privileged classes," but in spite of this drawback the author seems to admit that public municipal business is much more honestly managed in England than in the United States.

"The English city, too, is free from the spoils system. Jobs are filled for efficiency and not for pull, and the employee is retained during good behaviour. This is a real democracy of merit. An alderman would think of demanding a city contract for himself as soon as he would the creation of an unnecessary job for a friend or relative. Public opinion, too, would tolerate the one about as quickly as it would the other. Not that the English city has any civil service laws. It doesn't need them. Public opinion regulates the service just as it does official conduct in other regards. This is the only kind of a merit system that protects the public from a bureaucratic administration.

It is along these lines that the English city is supreme. It has a fine sense of itself. It has an intolerant conscience. It commands the service of a high grade of citizenship. It has never known the ward-heeler, and is exacting in its demands on its councilmen. And the people delight in the city's successes. They are proud of a fine tramway balance-sheet. They applaud an efficient manager. They are glad when the city makes a profit. Not for the sake of the profit alone, but because of the success of it all. The people care for the city and talk city in a way that we do not and cannot comprehend.

This is one of the things we lack, this sense of a city. We have not yet aroused an organised public opinion that is jealous of the city's well-being."

Harper contains an article by Mr. Cyrus C. Adams on "Unexplored Regions of the Earth," with maps of the continents showing by shaded spaces the yet unexplored portions. They are more extensive than one might have supposed before going regularly into the subject; in Africa and South America especially. Europe alone appears to have no shaded areas.

To the *Antiquary* Mr. W. B. Gerish contributes an article, with a couple of illustrations, on "Aspenden Church, Herts." The church contains a cinque-foiled "low side window," the subject of one of the illustrations. It is remarked that "it is on the side of the church remote from the road and village, but close to the footpath which leads to Buntingford." The author adds, "it may therefore be either a confessional aperture, the opening through which the sacring-bell was rung, or for the purpose of ascertaining that the lamps on the altar above the rood loft were burning." But why "therefore"? We hardly see the connexion.

The *Home Counties Magazine* gives an article on Dovecotes, chiefly historical and going back to classic times, but also urging the preservation of such examples as remain of old English Dovecots.

"They are remains of mediæval England, precious because they are evidences of the changes that have passed over our land, interesting features of times that can never come again; for we can feel quite confident that never more will squire or parson build huge pigeon-houses and fill them with birds, to be kept at the expense of their poorer neighbours. We are slowly growing awake to the rights of others. As standing memorials of the selfishness of the church and landed proprietors of long ago, we need not be proud of them, but it is only by such records that we can have communion with the life of the past, for "the humblest monument has the seasoned life of man in it." How can public opinion be influenced to claim the conservation of such relics?

The owners of dove-cotes should make an effort to save them to the country and keep them in preservation."

With which we quite agree.

The *Organiser* is the first number of a sixpenny magazine which is to deal with the problems and advantages of organisation in life and work. Whether the subject is large enough to keep a magazine going on it we are not prepared to prophesy, but we can say that the first number contains a great deal of good sense and good advice. Probably a great many readers would have to confess that they could find an application to themselves in the following :—

"There is no greater distraction than untidiness, whether it be in the workshop, the office, or the warehouse, and a glance at a man's desk will immediately reveal whether he works with method or without it.

Pull out the drawers in your own desk and examine the papers that are contained therein—how many of them are likely to be of future use to you? Think of papers you have recently dealt with and see if they are easy to find; see how many forgotten bundles the various receptacles contain—bundles that will never be required again—and ask yourself whether there is not room for improvement in your own methods of working."

This is from a chapter on "The Manager's Desk." There are other chapters on "Manufacturing Costs," "Advertising," etc.

NOTES BY A CLERK OF WORKS.

The Young Clerk of Works.

THE period when age was considered a qualification for clerk of works is rapidly slipping away; a full beard, a heavy personality, and hair streaked with grey are not now a necessity to the aspirant, for in this, as in other trades or professions, the young man is beginning to find a place where at one time there was almost a closed door to him. This may be largely a result of the state of the times, keener competition amongst contractors calling for more active supervision by the architects, combined with the fact that as the calls upon the architect increase he is glad to avail himself of the superior education and the better technical knowledge and abilities which the younger men are able to obtain and bring to bear upon their work. In a word, men under thirty years of age who have served an apprenticeship to a trade and perhaps passed through a builder's office, and with qualifications for drawing, quantities, estimating, and the theory as well as a good all-round knowledge of the practice of building construction—obtained through the more generous opportunities offered by the technical institutes throughout the country which were denied to their older colleagues—are presenting themselves to the architects, and the latter are glad, in many cases, to avail themselves of the greater use to which the younger men can be put, and thus to some extent relieve themselves of their own increased burdens. Not that by any means the day of the older man has passed, for there is at least a feeling of confidence created by his riper appearance and his longer experience, but I doubt that by the time the present young men have become as old as the present old men the day of the promoted old builder's foreman to clerk of works will have passed, and the position will have been established as almost a distinct profession with perhaps its own pupils or premium apprentices, and, maybe, its own Institute and qualifying examinations; thus opening another door to the middle classes and closing one to all but the most energetic and studious of the working classes.

To the younger men of the present day, therefore, is intended to be offered herewith something he can only obtain from the older men, namely, a few hints or gleanings from an older man's experience extending over half a lifetime spent on the supervision of public building contracts.

Modern Duties, Requirements, and Qualifications.

IT will be well to observe in opening that with the increased duties which his increased knowledge enables him to undertake the easy times of the old days have passed for the clerk of works, the days when all that the architect asked from him was to walk through the building and simply see that the work was being properly executed and the proper materials used, and then spend the rest of his time comfortably in his office, leaving the work an hour earlier than the men and with a similar belated commencement in the morning. He has now got not only the work and materials to watch, but careful valuations to make, work to measure up, estimates and odd details to prepare, the quantities to check, and the correctness of the drawings and supplied details to look to; also very frequent interviews with contractors, sub-contractors, and specialists, as well as to arrange the work and progress of each so as to avoid disputes and delays, without subordinating the quality of the work to be obtained from all. His correspondence may be considerable, and full days occupied by frequent visits to the quarries, the brick and terra-cotta makers, as well as to the workshops and stoneyards of the contractors. He must be out in the morning frequently at the starting time of the workmen, and will often be in his office long after they have gone, and every minute of his time will be fully occupied. He will have to study and carefully consider every action he takes, for in these days of speed, penalties, and arbitrations, much depends on his powers of observation and acuteness, quite apart from his knowledge of building and abilities as a practical tradesman. He must have a thorough acquaintance with the by-laws of the local authorities, and the architect will look to him to constantly exercise such intelligence and tact as to avoid disputes and yet obtain a maximum quality in everything, combined very often with a very high rate of speed.

It is apparent, therefore, that to be a successful clerk of works in the present day, and probably much more in future, he has to be a man of many parts, quick in decision, cautious, and certain of his ground; firm, yet conciliatory, strictly abstemious and upright, and in all energetic and tactful, and with a real love for his work.

Clerk of Works in Relation to Architect.

THE clerk of works is—or ought to be—the servant of the architect, and not employed by the building committee.

He should be able to command the architect's fullest confidence, should implicitly obey his slightest wish or command, and should see that his instructions are carried out to the letter. He should entirely subordinate any opinion he may hold to that of the architect. The primary duty of the post is to ensure that the architect's requirements are carried out; his value, therefore, as a clerk of works is measured by the extent of his services rendered to the architect. To save the architect from unnecessary worry, troubles, and wasted time must be his first consideration. It will be necessary for him to know exactly what are the architect's views and intentions in regard to everything, and he must give a minimum of trouble in obtaining from him the necessary information.

Before raising a query he must, by diligent search through the specifications and drawings, satisfy himself that the information he requires is not contained therein. His query must be clear enough to be easily understood and yet as brief and concise as possible; an explanatory sketch or a rough tracing accompaning it will often largely assist in this, and above all avoid having one returned to him as unintelligible.

He should transmit to the architect at the end of each week a brief report describing the state of the works, the progress made, and particulars of delays which are occurring; at the foot of his report should be a statement of the value of the work executed during the week, and the total value up to date. These valuations should be ascertained by measurements, and should be so accurate that the payments to the builder may be safely made from them. In the event of anything arising on the building about which he is uncertain he should, if necessary, suspend the work in question until he hears from the architect. He should not give instructions or order any "extra" or "omission" before it has been authorised by the architect. An estimate of the cost or saving involved should accompany each query respecting a variation.

Single sheets of foolscap should be used when writing to the architect, and the reply should be written immediately below the query. Separate sheets should be used for different subjects, and all sheets relating to one subject should be pinned together and should be carefully retained for reference and future guidance.

Some subjects are better left until the architect visits the works, and the clerk of works will have to use his discretion in this.

The architect's periodical visit to the works should be carefully arranged for, with a view to his being able to see everything with a minimum of trouble and waste of time; anything likely to escape his observation should be pointed out. Places likely to cause difficulty should be anticipated, and information obtained in advance, and a careful note should be made of all verbal instructions given by the architect. Verbal instructions may be given regarding a variation on contract, but the clerk of works should forward an estimate in writing all the same.

Suggestions for "improvements" should not be made and opinions should not be given until they are asked for. If when a clerk of works' opinion is asked he cannot see clearly any method by which he could overcome the difficulty he had better be frank and say so rather than give an opinion which would be worthless.

The responsibility of the clerk of works is such that the architect should look to him for an explanation of everything which occurs on the building, however minute or however important, always excepting the control of the men and scaffolding; to offer an excuse for not being able to give the required information is to acknowledge a failure in carrying out his duties, and this responsibility should be the basis of the whole of his operations.

Drawings, Specifications System and Office Work. "Variations," and Reports.

ON commencing a building the first essential is to get a thorough knowledge of the drawings. It should be possible to have a general idea of them pictured in the mind's eye; they should never be carried about on the building, and it should be unnecessary to refer to them to answer a simple enquiry.

The specifications should be virtually committed to memory, so that it is possible to tell at a glance whether the correct thing is being done on the building.

It will not be possible to retain more than a general idea of the contents of the bills of quantities, but this should be obtained. Constant reference should be made to all as the work proceeds, and the essence of the contract should be thoroughly understood. As method is absolutely essential in a business so must a clerk of works have a system, if he is going to obtain the best results from the time and material at his disposal. He will hardly be able to apportion certain hours to certain purposes, for there are so many unexpected calls upon his time, but there are certain rules he can make and adhere to. Let each day's work be completed on the day it is begun; this leaves the next day clear for its own work, and for anything more important which may arise. Letters should be answered on the day they are received; work should be measured up on the day it is completed; details should be checked on the day they are received, and variations reported as soon as they arise; the architect's instructions should be conveyed to the contractors without delay, and reports made to the architect in the same way.

Difficulties so often arise on a building and take up so much time that office work is likely to be neglected in the period during which they last; this should not be permitted; the office work should be done during the interludes. The first essential is, of course, to watch the building operations, but, if necessary, it is advisable to stay an hour or two after the men have gone, in order to complete the office work of the day.

A method in measuring up for valuation should be adopted and strictly adhered to. Measure-books, marked on the outside "Measurements for Valuation," should be kept for that purpose alone; these should be properly indexed for easy reference, and the dimensions squared, abstracted, billed, and priced on the building contract schedule. The valuation for each week should reach the architect by each Monday morning's post. A valuation of the materials on the site should be made and kept separately, but reported on the same sheet. The measure-books, abstracts, and bills should be carefully retained, and as each week's valuation is reported the amount should be marked in pencil over the corresponding item in the priced bills of quantities belonging to the contract, thus any exceeding or shortage will be checked, and can be examined by the surveyor, who will later be appointed to deal with the "extras and omissions," generally on completion of the contract. The writer during the last four years has had the privilege of having the surveyor's original dimensions and abstracts always in his office, and these have been of the greatest service

and assistance, for they have not only avoided troubling the surveyor for information, but delays have been avoided, for by turning up any doubtful item, it has been seen at once what has been taken, which is far from possible when one has only the bills of quantities to refer to, and checking the quantities has also been greatly facilitated. The amount which can be saved on the contract by the clerk of works in carefully checking the quantities is often considerable.

In dealing with "extras and omissions," as each arises it should be valued, and the particulars consisting of dimensions, abstracts, and a small bill should be pinned to the foolscap on which it is reported to the architect. A notebook marked on the outside "Extras and Omissions" should be kept and a clear but brief description of the item, with the cost, should be duly entered immediately it is authorised. The architect should be kept informed of the total amount of "extra over contract," so that there may be no exceeding the amount he has apportioned as "contingencies," on completion of the contract. As a rule, the work which can be measured up and priced on the schedule will be measured up on completion of the building, but day work will have to be allowed for pulling down and for small or intricate work which cannot be priced on the schedule.

Day Work, Work Covered Up, Diary, Correspondence.

DAY work is often the source of considerable trouble which would be avoided if a proper system in dealing with it was put in force. If the day work is extensive the best way is to consider that the men are being employed direct by the clerk of works, and before commencing give to each man a "time sheet," which should be handed in on the completion of each day's work, initialed by the clerk of works, and given out by him again the following morning. At the end of the week during which the work has been executed the contractors should make out a "weekly" time-sheet containing the whole of the time and materials used during the week and present it to the clerk of works for signature. The "weekly" sheet can then be checked by the time-sheets in the clerk of works' possession, and signed if correct; duplicates of the "weekly" sheets should be made and one retained by the clerk of works, the other by the contractor. In a margin on the clerk of works' copy a valuation should be made up to date of each item—each item should be entered separately on the sheet and should correspond with the heading or description already used in the "extras and omissions book"—and not only should the amount be added into the weekly valuation of the building, but care should be taken to see that it does not exceed the amount already reported to the architect as the probable cost, or otherwise it should be reported that a further amount is necessary, so that in the end the reported amounts will balance, and the sum total be correct. In dealing with extras and omissions, however trivial, one should never be set against the other and "let the thing go," as is so often done.

All extra work which will be covered up should be measured up in company with the contractor's representative, and the measurements should be signed by the latter. A measure-book should be kept for this purpose alone and marked on the outside "Measurements of Variations on Contract."

The "diary" of the clerk of works should be to a building as is a "log-book" to a ship. The occurrences of every day should be briefly but clearly and strictly entered on the day during which they occur. Notes of the state of the weather, delays with their causes and duration, minutes of important interviews and conversations, should be made, and each stage of the building carefully noted. In the event of an inquiry or an arbitration, these notes become of the greatest value and importance.

Press copies of all letters to the contractors, reports to the architect, and other important letters, should be made.

Letters should always be clear, but as brief and concise as possible. An unnecessary letter should never be written, but a properly worded letter at the proper time may be of the greatest service; each letter should be read over a second time, and if in time of "stress" an hour or two after it is written. On each letter received, where necessary, should be indicated in pencil the date of the reply, and every letter—no matter how apparently unimportant—should be carefully retained until some time after the completion of the building.

Clerk of Works in Relation to Contractors and Workmen.

IN his dealings with the contractor the clerk of works will do well to exercise the greatest amount of forbearance, and always to adopt conciliatory methods. He should be careful to avoid taking upon himself the duties which are obviously those of the architect.

In these days of keen competition and trade unionism occasions may often arise when it will be necessary to have some "straight talking"; this is distinctly the work of the architect, although it may be the duty of the clerk of works to bring to his notice the facts which call for the same.

Whilst a remonstrance, addressed by the architect to the contractors at the proper time will generally be accepted by the latter in a perfectly good spirit and be of the greatest service, similar remarks from the clerk of works will, as often, be resented and utterly fail to achieve the desired object. Indiscreet remarks or bad temper will always produce bad feeling, and above all else in the conduct of building works should be studiously avoided. Whatever the provocation received, the clerk of works will do well to leave to the architect the necessary adjustment of the same. It will be obvious that it is to the interest of all concerned that the clerk of works should be on amicable terms with the contractor and his foremen, and that the utmost discretion and tact should be used throughout. On the other hand, "confidences" and useless conversations or "gossips" lead to no good.

At no period will the circumstances require more careful judgment than when defective work or materials have to be rejected; but as the need for the same will more or less frequently arise it is in the exercise of this duty that the greatest demands will be made upon his tact and discretion. The rejection of work or materials is an extreme measure, and should only be resorted to when all else has failed; nothing is more conducive to the creation of bad feeling and strained relations between clerk of works and contractor.

By closely following the progress of the work and by an intelligent anticipation of events he should be able to give a timely word of warning or advice, which will generally be quite sufficient to avoid the vexatious operation of rejecting executed work. Should it be necessary, however, to resort to extreme measures, and after he has satisfied himself that he has just grounds for his action, he must act with promptitude and firmness; there must be no attempt to "beg the case" by argument; and delay or weakness is fatal to the achievement of a successful issue. The introduction of vindictiveness or wrongful rejection of work will speedily mean the end of the career of any aspiring clerk of works, and the extent of his strictness or the exercise of leniency must depend upon the instructions received from the architect.

Great care should be taken to commence on a building in the way it is intended to continue and to finish; leniency at the commencement leading up to strictness as the work progresses is a mistake, and will usually result in a poor ending. Consistency and moderation are essentially alike in their necessity to properly conducted supervision.

There should be no direct interference with the workmen; instructions should be given to the foreman, and he in turn will see that the men execute the work as required. Men are quick to recognise the abilities or the weaknesses of those under whose supervision they work, and will respond or take advantage of the same to a remarkable degree. The extent to which a foreman may be trusted will depend upon his ideas of how the work should be carried out, combined with his abilities or intelligence in putting the same into execution, or upon the instructions he receives from the contractor. A capable foreman is a valuable asset to a clerk of works, but should his capabilities consist entirely of his power in "hustling" men, and in obtaining a maximum of work in a minimum of time, then the clerk of works must rely entirely upon his own resources in obtaining his desired results, and must arrange his method of supervision and the apportioning of his time accordingly.

It is a fact to be regretted, but one inseparable from any thought in connexion with the post, that were all contractors honest, the need for a clerk of works in the way that we now know him would hardly exist, and, whilst this idea must be discreetly kept in the background, events continually transpire which leave no uncertainty in the mind of the clerk of works as to the reason why he is there and the constant need for him to have every faculty on the alert combined with the exercise of such wit or discretion as may be only at the command of many men when approaching the end of a lifetime's experience. The post is an honourable one, and brings into play a wide range of subjects. To have a thorough knowledge of each trade, with its varying materials and methods, means many years of close application and study, and as the years go on many old methods and materials drop out, supplanted by newer methods and materials of an almost endless variety; these must be carefully sought for and made part of the clerk of works' curriculum. Each day there is something new to learn and something old to forget if he wishes to keep abreast of the times.

The future holds a more generous position for him than he has had in the past, but with it will come more responsibility and a greater tax on his energy and intelligence. It behoves him then to have a keen appetite for all that concerns the building trade, to go about with his eyes wide open and never to imagine that he knows enough. He must be a learner to the end of his days, for it is only by this that he will be enabled to exercise the supervision necessary on a building to the extent that when he leaves it on completion he may feel assured that all that head or hands can do has been done to make it a success.

W. T. B.

THE LONDON COUNTY COUNCIL, THE LONDON DISTRICT SURVEYORS, AND THE LONDON BUILDING ACT.

SIR,—Attention has been publicly drawn more than once to the non-action of the London County Council in properly filling the vacancies caused by the deaths and resignations of those who previously held the office of District Surveyor in many parts of London. This non-action on their part is unfair to the public, the architectural profession, the building trades, and especially to those who have qualified for the position and had hoped to become District Surveyors in their turn. It will be found that this non-action is a determined action on the part of the Building Act Committee not only to reduce the number of the District Surveyors, but also to make them absolutely dependent on, and subservient to that Council; in fact, to make them nothing more than outside and subordinate officers of that Council.

Parliament intended that the District Surveyor should be an independent official, and at the same time a practising architect, the latter to be of importance to aid him in maintaining his independence. The Metropolitan Board of Works in 1885 first struck at that independence, by making those who were appointed contract themselves out of the Metropolitan Building Act, 1855, so far that they should not practise within their own districts, for which practice the Building Act specially provided. The Royal Institute of British Architects, the District Surveyors' Association, and other interested Corporate bodies raised no objection, not then seeing to what this might lead. The London County Council, as soon as it was formed, carried the precedent further by making all who were appointed further contract themselves out of the Act, so that they might not practise as architects or surveyors anywhere, but should give all their time to the duties of their office. Therefore, these District Surveyors became absolutely dependent on the County Council, except that this dependence was lessened by the practice and independence of those previously appointed. Still, as these last died off or resigned, so the dependence of those appointed by the Council became greater to that body, seeing there might be little prospect of private work and no pension were they to quarrel with the Council, or had to resign owing to ill-health or other cause.

Even this power was not sufficient for the Building Act Committee of the Council, for,

whereas the old Metropolitan Board of Works acted solely by itself, having less work on its hands, the London County Council, owing to increased work, delegated the power of action to its Committees. Let us look back and see what has been done in the meanwhile. In 1892, when the Metropolitan Board of Works ceased to exist, there were seventy-four districts, with seventy-three Surveyors. Now there are only fifty-four districts, with forty-seven Surveyors. Of the seventy-three Surveyors at the time of the coming into power of the London County Council, thirty-nine have deceased or resigned; and one district was taken out of the County of London. Thus, there are at present, thirty-three District Surveyors appointed before 1892; since then there have only been ten permanent appointments; four hold appointments solely ad-interim (it is to be hoped they can practise as the older Surveyors); six districts are held ad-interim by Surveyors holding other districts permanently; so that the districts can easily be reduced in number to forty-four. The Building Act Committee have twice brought up a report, suggesting amongst other alterations, that the districts should be reduced to twenty-eight as vacancies occur; the report was referred back on each occasion, but the Committee is carrying the point by delay. There has been no permanent appointment for the last three years.

It is, of course, very clear how weakly a body of twenty-eight men, even if forming an Incorporated Society in law, could contest against a large publicly-elected body having in practice, if not in theory, almost autocratic power as to building matters in the County of London, especially when the livelihood of those gentlemen is at the disposal of that body; also how much stronger was the joint power of over seventy District Surveyors, who should be independent practising architects against that larger body, should the latter wish to strain the law against those interested in building. The law intended that the District Surveyor should decide as to the reading of the Building Acts, and in case of appeal being necessary against them it was to be to the appointed magistrates; the County Council were not to decide as to the reading. The present state of things tends to make District Surveyors enforce a reading of the Acts of those in authority at Spring Gardens, and at times in opposition to their own reading and good sense. In a case recently tried before a magistrate the *Daily Mail*, in its report thereon, styled the District Surveyor as the "County Council Surveyor," and this is now the general view of the public as to those gentlemen, some of whom, I believe, even consider themselves to be such.

I must occupy no more of your valuable space at present as to the increased cost to the ratepayers of the administration of the London Building and Factory Acts by employment of extra officials at Spring Gardens. As to the extra correspondence between Spring Gardens and the District Surveyors, I found communications during the last few years from Spring Gardens to be six-fold. Of the attempt, partly successful, to make District Surveyors officials under the Factories' Acts; of the system of making the inside officials and the District Surveyors no less than spies on each other; of the confusion in the working between the Building and Factories Acts by requiring work to be done under the latter, what is forbidden by law under the former; by the attacks on the Tribunal of Appeal, and the endeavour to obtain the complete control of that Tribunal, and in cases by the disregard of the London Building Acts in reference to some of their own buildings which are not exempted by those Acts.

In the past history of this and other countries, the work of various businesses was conducted by guilds, ruled by the masters of those several businesses; this is still so with the legal profession and the Goldsmiths' Livery Company, the latter in London; and I believe in some provincial towns by other trade guilds Would it not be well to revert to that old precedent so far as building is concerned, instead of having those ignorant of its requirements drafting suggestions with the view of those suggestions becoming law.

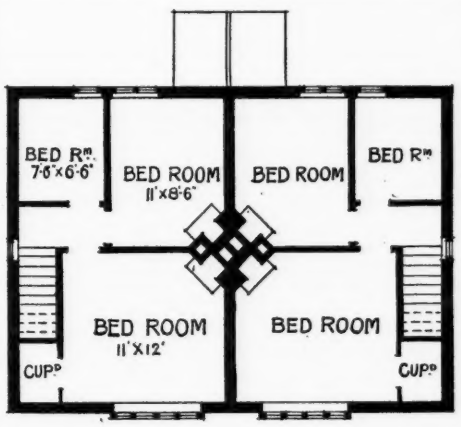
H. McLACHLAN.

1, Furnival-street, Holborn

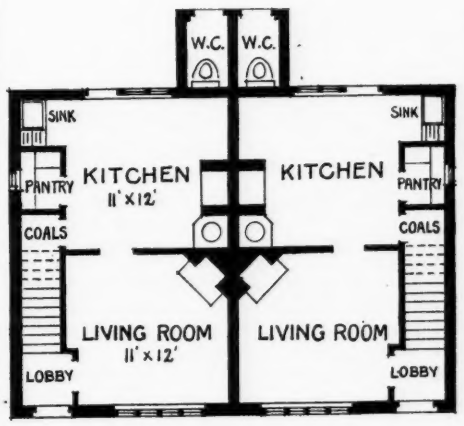
A Pair of Cottages at Cringleford, Norwich. Mr. W. J. Dunham, Architect.

COTTAGES AT CRINGLEFORD.

THESE cottages have recently been erected at Cringleford on the outskirts of Norwich. The walls are of local red facing bricks, with tile hung gable; and the roofs are covered with green Welsh slates with red tile ridge and hips.



FIRST FLOOR PLAN



GROUND PLAN

The work has been carried out by Messrs. J. Anderson & Son, of Norwich, at a total cost of £255 the pair, including drainage and front and division pale fencing. The architect is Mr. W. J. Dunham, of Opie-street, Norwich.

We give these as an example of plain and cheaply-built cottages.

Architectural Societies.

BIRMINGHAM ARCHITECTURAL ASSOCIATION.—At a meeting of the Birmingham Architectural Association, held on the 4th inst. at Norwich Union Chambers, Mr. Ball in the chair, Mr. Arthur Dixon lectured on "Architectural Education," and suggested that the professional education which was now open in Birmingham to architectural students was incomplete on two sides, the practical and the scientific. Having reviewed the classes now open to architectural students in Birmingham, Mr. Dixon entered into a short digression upon the qualities which constituted a good building. Convenience in planning, solidity, combined with a due limitation of the quantity of materials to be used, presented problems with a view to which the present system of education afforded a not altogether inadequate preparation, though in these days, when materials such as steel and reinforced concrete were becoming of such great importance, the training which had been hitherto reserved for engineers became more and more necessary to the architect. If, however, the attainment of the utilitarian qualities of a good building demanded a more scientific training on the part of the architect, the case became even stronger when they thought of those qualities which had a more spiritual character. He used "spiritual" partly because he wished to avoid that much vulgarised and misused word artistic. The word had to cover what was the greatest quality of all—he meant expression. There was a kind of expression which no building, however humble and however utilitarian, ought to lack—the expression of its own essential character and the expression which came from an exact and delicate adaptation of the means to the end in view. It was, he believed, this quality of expression which more than any other led the way to the interest and beauty and dignity of a building. One of the most delightful things in the world was a mediæval fortress. He could find no better illustration of delicate adjustment of material to its purpose than the vaulted choirs of the great XIIIth century churches, such as Westminster, Amiens, and most of all Beauvais. The mastery over materials which was certainly attained by the mediæval builders was no doubt gained on the job and and in the workshop, without much, if any, help from university schools or books; but the materials which he had to study were comparatively few, and so were the purposes for which they were used, while the methods of their use might be said to have been included within the limits of a single living tradition, with which it was quite possible to become thoroughly acquainted in the course of a few years of actual apprenticeship and practice. It was certain that could not be done now—other means must be

found, and one of them was that architectural students should receive part of the training now given to engineers. They wanted a co-ordinated scheme for architectural students which would make it easy for them to get all the training they really ought to have; and one very great advantage which would follow upon this being done in connexion with the University would be found in the splendid apparatus which was being provided there for testing materials of all kinds, whether in respect of tension, compression, or transverse strains. Some buildings looked as if the materials of which they were composed had been thrown together, others as if the materials had been bullied and kicked into their respective places; but the building which they loved to look at again and again was that whose materials looked as if they had been led together by a friendly hand, which had taken the trouble to study their characters, to find out what work each could do best, and would do most happily, and had also taken thought to put each beam and each stone in that position in which it could perform its almost eternal function in self-respecting and happy tranquillity. They must learn to play with their stones and beams like friends rather than order them about like a squad of stokers. If it were possible to provide classes for students in which they would become familiar by actual practice with the work of the carpenter and mason, and perhaps the bricklayer and plumber, it would be of very great advantage. It would seem that on the practical side at least there was in Birmingham already in embryo and on paper the elements of what they wanted. An architect ought to have actual practical familiarity with a good many points, such as the various methods of finishing masonry, methods of bedding, bonding, and pointing, etc. It was only by such practical familiarity with materials and their treatment that they might hope to avoid what had been for some long time the Scylla and Charybdis of their profession—the Scylla of the pedantic copying of ancient form, and the Charybdis of the fanciful and effeminate vagaries of the new art, which had sprung up to no small extent in brains unsanctified by wholesale contact with the stocks and stones of Mother Earth. The essential point was the co-ordination and direction of architectural studies, and he supposed the ideal solution would be a chair of architecture at the University. Liverpool had its chair of architecture, and they might have theirs in time. In the meantime, it would be of great use if they could have a committee to consider the whole question.—A discussion followed.

LIVERPOOL ARCHITECTURAL SOCIETY.—A meeting of the Liverpool Architectural Society was held on the 7th inst. at the Society's rooms, Harrington-street, when a paper was read by Mr. Stanley D. Adshead, of London, on "Style in Architectural Draughtsmanship." After a reference to the great originators of style, Mr. Adshead reviewed the various styles in use, and advocated the use of the French or academic style in the explicit style of draughtsmanship, taught to the exclusion of all others up to forty years ago, and asserted that only by the adoption of which could really national style be founded and developed. The representation of really good architecture could only be done justice to in this style because the characteristic attribute of good architecture was refined detail. It was contended that for ordinary competition purposes this style demanded too great an expense of energy and time, but it was impossible to make explicit drawings hurriedly and well in any style. The prevalence of thick line drawing was, however, due to stress of competition, and it suggested that the architect was not confident of his own ability to make a display of grace and refinement or had not confidence in the assessor, so that he tried to captivate the latter by a display of brute force. He hoped assessors did not give their awards on a mere display of good black and white work. The prevalent thick line was responsible for the poverty of detail which appeared in the modern municipal and the Carnegie Library, as compared with the interior of an old banqueting-hall in Whitehall, and he ascribed this degeneracy to our coarse manner of drawing.—A discussion followed the reading of the paper, led by the President, Mr. Edmund Kirby.

ROYAL INSTITUTE OF THE ARCHITECTS OF IRELAND.—The usual monthly Council meeting was held at 20, Lincoln-place, Dublin, on Friday, the 7th inst., the President, Mr. W. M. Mitchell, in the chair. An exceptionally heavy correspondence having been dealt with, the President and Mr. W. Kaye-Parry were appointed delegates to the Sanitary Congress. The following names were passed for ballot as members:—Messrs. Lucius O'Callaghan, Page L. Dickinson, M. A. Hennessy. The Standing Sub-Committees were appointed as follows:—Professional Practice Committee, Messrs. F. Batchelor, A. E. Murray, and C. A. Owen. Arts Committee, Messrs. G. C. Ashlin, Sir Thos. Drew, and R. C. Orpen. Publication Committee, Messrs. C. H. Ashworth, H. Allberry, and G. P. Sheridan. The Hon. Secretary was instructed to send the standard conditions of competition to the Clerk of Galway Union, with reference to the proposed fever hospital, and to the Town Clerk of Dublin Corporation with regard to the technical schools.

Fifty Years Ago.

FROM THE *Builder* OF JANUARY 10, 1857.

SCULPTURE.

THE statue of General Sir Charles Napier, which has been set on the pedestal in Trafalgar-square since our notice of August last was written, is not more satisfactory in effect than we feared would be the case from the model. It is as difficult to see on what grounds our contemporaries of the daily press award their praise in matters of art as it has been to understand their censure. The statue is ill placed: it fails as a public monument, because it wants architectonic character; and the sculpturesque treatment, which was heavy in the plaster, is more so, and is false in very principle, in the bronze. Truly, our sculptors lately, though second to none in Europe, have not been acquitting themselves creditably, at least in monuments out of doors. The necessity, and at the same time the good æsthetic principle, of a modification in the form, when there is a change in the material; and certain requirements of grouping, very obvious to architects, which belong to the effect of every statue on a pedestal, and every public monument, are becoming habitually neglected. Those who would infer that we should do better by employing foreigners may observe the monument to officers of the Guards, erected in St. Paul's Cathedral, with its own faults, in the use of contradictory principles as to imitation—not to mention the ill-cut lettering of its inscription. We must take some opportunity to inquire into the course for correcting these growing deficiencies in a noble branch of art.

Illustrations.

UNIVERSITY COLLEGE OF NORTH WALES, BANGOR.

WE have devoted our plates this week (giving one more than usual) to a full illustration of the design for this important building, submitted by Mr. H. T. Hare in the recent competition, which has been selected for execution.

The design will be best described by printing the greater part of the Report sent in by the architect, which is as follows:—

"The unusual character of the site has demanded very careful consideration in order to dispose the several departments to the best advantage, both from the point of view of practical working and of architectural grouping.

The great diversity in level will inevitably involve some considerable expenditure in the laying out of approaches, communications, etc., and the author has therefore endeavoured as far as possible to utilise the natural surfaces and thus minimise the amount of ground work which will be required.

The buildings have been divided into two general groups, one on the upper level consisting of (*a*) the arts and administrative block; (*b*) the library and museum; (*c*) the science block; and (*d*) the day training school; the other on the lower level comprising (*a*) the great hall; (*b*) the mining and agriculture block; and (*c*) the zoology and botany block. So far as the requirements in this respect are laid down, this disposition follows that suggested in the particulars of competition.

The area of ground available for building on the upper level is somewhat limited, and it appears to be inadvisable to attempt to place more of the buildings in that position. It would, however, be quite possible to interchange the day training school and the botany and zoology block if that were considered more convenient in working.

The upper group has been arranged in the form of a great quadrangle of sufficient area to insure perfect light and ventilation to the whole of the buildings. Although the buildings are continuous, each block is entirely separate and distinct in its internal arrangements, and has its own entrances from the quadrangle and the surrounding roads. A carriage entrance to the quadrangle is provided from Penrallt-road, leading to the entrance of the administrative block, and there is also an available entrance from the roadway on the south front.

The lower group has been placed on the same axis as the upper, and arranged with a view to the best architectural effect. It is assumed that the great hall will, on the occasions of public functions, be used by large numbers of people, and the approaches and entrances have therefore been planned on a liberal scale.

The drawings show very clearly the detailed arrangements of each block, and a minute description is therefore unnecessary. The accommodation suggested in the sketch plans has been closely followed, and convenience, light, and air in every part have been carefully considered. The design has also been laid out with a view to the buildings being erected in sections at different times.

The buildings are proposed to be faced entirely with stone. The general walling to be of local coursed rubble, probably that known as Penmaen Park, and the dressings of St. Bee's stone. Before, however, definitely deciding on these matters, the author would propose to make a more careful investigation of the building stones available than has been necessary for the present purpose. It is probable that Portland stone would not be found prohibitively expensive for the dressings. The roofs are proposed to be covered with Precelly slates laid in diminishing courses.

The whole of the construction would be fire-resisting with steel joists and concrete, the joinery throughout to be of wainscot.

The windows to be fitted with reversible steel casements, enabling the cleaning to be entirely done from the inside.

The heating to be effected by steam supplied from boilers in the position indicated on the plans, and conducted by mains in subways to the various blocks, in each of which would be fixed calorifiers. The latter would in such case supply heat to a separate low-pressure hot-water system. This principle would allow of the necessary extensions as occasion may require without expense or alteration to the portions already installed, while enabling the entire installation to be worked from a central point with a minimum of labour; and, further, each block would be entirely under separate control by its occupants.

Inlet ventilation would be provided to all rooms, and extract ducts are arranged over corridors, etc., connected with chambers or turrets in the roofs, in which would be fixed electric fans.

The buildings have been designed in a free rendering of Renaissance, which the author considers eminently suitable to the site and surroundings, which appear to demand a somewhat picturesque rather than a more severe and classical treatment."

WILLING'S PRESS GUIDE.—The thirty-fourth annual issue of this excellent and convenient guide has been sent us by Messrs. J. Willing, junior, Limited, 125, Strand, and we have pleasure in calling attention to it. The names of newspapers, etc., are arranged in alphabetical order, and there is no difficulty in readily finding the information sought for. The price of this useful little work is 1s.

PROPOSED NEW BUILDING REGULATIONS FOR EDINBURGH.—The members of Edinburgh Dean of Guild Court had under consideration, at a private meeting on the 3rd inst., the first part of a series of clauses and regulations which they propose to transmit, when completed, to the Town Council, with a view to their being embodied in and promoted as a Provisional Order. The proposals of the Dean of Guild Court imply that the suggested Provisional Order would be of a comprehensive character—not only codifying existing regulations, but also enlarging the powers of the Court with respect to the formation, maintenance, and regulation of roads, and the erection of buildings. Several pages of the draft of the proposed clauses were recently gone over *seratim*, and tentatively approved. Among the principal clauses that have so far been considered are provisions for the prevention of *cul-de-sac* streets, and for the preservation of the amenity of districts where new buildings are being erected.—*Scotsman*.

Engineering Societies.

INSTITUTION OF CIVIL ENGINEERS.—At the ordinary meeting of this Institution on Tuesday, Sir Alexander Kennedy, President, in the chair, the paper read was "The Simplon Tunnel," by Mr. Francis Fox. The following is an abstract of the paper:—

After touching upon the history of the Simplon Pass over the Alps, and the roadway built by Napoleon in the four years preceding 1805, the paper describes the present tunnel, which was adopted out of about thirty different proposals. The chief feature of this route is its small altitude (2,313 ft.) above sea level, which compares favourably with other Alpine tunnels. In the tunnel the gradients were decided primarily by assuming that the progress of excavation would be the same from both ends, and secondly by the least fall capable of giving efficient drainage; thus a minimum of 1 in 500 was adopted for the north side, and 1 in 143 for the south side, the two gradients being joined by a vertical curve in the centre.

The work provides for two parallel single line-of-way tunnels, 55·8 ft. apart, connected by oblique cross passages; the reasons for this arrangement were:—(1) Ventilation during construction; (2) greatly reduced pressure on the tunnel-lining; (3) increased facilities of transport and drainage during construction; (4) increased facility in subsequent maintenance during traffic; (5) safety in working traffic. One tunnel only has been completed to the full section, the second gallery being left at present as a heading. The completed tunnel measures 16 ft. 5 in. in width, and 18 ft. ½ in. in height above rail level. It is lined throughout with masonry. Refuges and chambers are built into the cross passages for use by the maintenance gangs.

In December, 1890, Messrs. Sulzer, of Winterthur, and Messrs. Brandt, Brandau, & Co., of Hamburg, presented the plans, and in 1895 the Swiss and Italian Governments ratified a convention for the construction of the tunnel. The cost was estimated at 3,040,400*l.*, towards which the two Governments contributed; the period of construction was to be five and three-quarter years. The actual cost is about 3,200,000*l.*, and the period taken six and three-quarter years. On the death of Mr. Brandt, Colonel Locher-Freuler, of Zürich, joined the firm of contractors. Dr. Max Rosenmund, of Zürich, carried out the triangulation, and was responsible for the setting-out of the tunnel. In August, 1898, the excavation was commenced with the pick, pending the installation of hydraulic power; at Brigue the Brandt hydraulic drills began work on November 22, 1898; but at Iselle, owing to the necessity of transporting all plant over twelve miles of steep roadway, drilling was not started till February 18 of the following year. The two ends were worked on the same general plan, each independently; about 2,000-h.p. was developed both from the Rhone and from the Diveria, driving high-pressure hydraulic pumps.

A full description of the Brandt hydraulic rotary drill and its capabilities is alluded to in the paper. with methods of blasting. Ventilation was effected by fans; the air, forced into the mouth of one of the galleries, travelled by the parallel gallery, the latter being used as means of exit and entry for the trains of material, etc. The whole works were kept remarkably fresh. To supply the men working in the faces, air was taken from near the last crosscut, cooled by means of a fine jet of water, and driven through light iron pipes to any desired point. Later, on meeting the hot springs, the air was cooled at various points in the finished heading by means of jets of cold-water spray. Though in the St. Gothard a temperature of 93 deg. Fahr. proved in many cases insupportable, yet in the Simplon, owing to the excellent ventilation, a temperature of 133 deg. Fahr. was not unbearable. Diagrams are given in the paper showing the relation of the temperature in the tunnel to the height of mountain above it. On leaving the tunnel the workmen entered a large warmed building fitted with dressing-rooms, and with hot and cold douche baths. Here they changed into warm, dry clothing. and their mining garments were dried or washed ready for the next day.

The work of excavation progressed rapidly at both ends, an advance of 18 ft. per day being frequently recorded. On the Swiss side the rock encountered was chiefly gneiss and micaceous schist. On the Italian side, after traversing about two and three-quarter miles of hard Antigorio gneiss, the thermometers in the rock showed a diminishing temperature, and suddenly a cold underground river of 12,000 gallons per minute burst in. Owing to the treacherous nature of the rock at this point, only heavy joists buried in quick-setting concrete were able to hold open a heading of sufficient area to give access by small hand-waggons to the drills beyond. This short length entailed a delay of six months. After traversing another two and a quarter miles, hot springs with a maximum flow of 4,330 gallons per minute and a temperature of 45·4 deg. C. were encountered, but by taking the water of the cold spring and throwing it into the crevices of the hot, the heading was made bearable. During these delays to the south end, the north had been advancing with increasing rapidity, and had reached the central summit of the tunnel; to avoid delay, however, the heading, hitherto on the level of the floor of the tunnel, was made to rise on a gradient of 1 per 1,000. When the advance heading reached the soffit of the future tunnel, working downhill was attempted, but finally work on the Swiss side was abandoned, the drills were withdrawn, and the heavy iron doors which had been erected were closed (March 20, 1904). Completion was thus left to the south advance, whose drills could just be heard through the intervening 1,094 yds. of rock. On February 24, 1905, at 6 a.m., the final charges on the Italian side were exploded in the roof of the gallery, blowing a hole about 8 ft. by 2 ft. into the floor of the Swiss heading above.

The first train passed through on January 25, 1906, and on May 19 the King of Italy travelled in a special train to meet the Swiss President at Brigue, who returned with him to Domo d'Ossola; the final opening to the public taking place with great festivities on May 30, 1906.

Competition.

HOUSES AT ANTWERP.—The Commercial Intelligence Branch of the Board of Trade are informed by His Majesty's Consul-General at Antwerp that the municipal authorities of that city invite tenders for the construction of eight houses adjoining the new public hall at Antwerp, and the completion of the latter building, at an estimated cost of 1,246,650 francs (about 49,862*l.*). A deposit of 60,000 francs (about 2,400*l.*) is required. The specification (cahier decharges No. 1,183) may be obtained from the Hôtel de Ville, Antwerp, at a cost of 5 francs (4*s.*), and the plans at a cost of 200 francs (8*l.*). Tenders should be sealed, in registered envelopes, addressed to M. le Bourgmestre de la Ville d'Anvers, Hôtel de Ville, Antwerp. A copy of the specification may be seen at the Commercial Intelligence Branch of the Board of Trade, 73, Basinghall-street, London, E.C.

Correspondence.

BERLIN ARCHITECTURE.

SIR,—To those of your readers who, like myself, have but an imperfect knowledge of Berlin and its architecture, the profuse and excellent illustrations in the New Year's number must have come as an agreeable surprise, the usual programme not having been revealed to us beforehand. My own strong feeling during my visit was that *war* was everywhere the predominating influence. Soldiers seemed everywhere to abound as signs of the sculptors' efforts.

May I venture to suggest that, in the near future, a series of those splendid sculptures in the Sieges Allee would go far to render your offerings to us even yet more valuable.

The writer of the admirable article certainly made good use of his time. In the great heat that I had to encounter it was impossible to do all one wanted to do. In this respect he was more favoured than your obedient servant,

E. SWINFEN HARRIS.

*** The idea of illustrating some of the Sieges-Allee sculpture had already occurred to us; but in the New Year's issue we required all the space for the architecture. We shall keep the sculpture in mind, however.—ED.

BOOKS RECEIVED.

PAINTERS' COLOURS, OILS, AND VARNISHES: A Practical Manual. By George H. Hurst, F.C.S. Fourth Edition. (Charles Griffin & Co. 12s. 6d.)

PRACTICAL SANITATION. By Herbert Manley. Thirteenth Edition. (Charles Griffin. 6s.)

SANITARY ENGINEERING WITH RESPECT TO WATER-SUPPLY AND SEWAGE DISPOSAL. By L. F. Vernon-Harcourt, M.Inst.C.E. (Longmans, Green, & Co. 14s.)

The Student's Column.

ELECTRIC LIGHTING AND HEATING.—II.

Electrostatics—Historical—The Electric Fluid—Current—Effects Produced—Potential—Ohm's Law—The Ampere—The Watt—The Volt—The Ohm—Series and Parallel—Examples.

HISTORICAL.—The modern working theory of electricity is founded on certain fundamental phenomena which were familiar to the ancient Greek philosophers. They knew, for instance, that when amber and some other substances were rubbed they acquired the property of attracting light bodies to themselves. The phenomenon, however, does not admit of easy explanation, and Dr. Gilbert, of Colchester (1540-1603), court physician to Queen Elizabeth, seems to have been the first to study it scientifically. He introduced the words, "electricity," "electric attraction," and "electric repulsion," but he was not so successful in explaining the phenomena of electrostatics as in explaining the analogous magnetic phenomena. A great advance was made by C. A. Coulomb, of Montpellier (1736-1806), who proved experimentally that the "electric fluid" spreads itself over a body, not by "chemical affinity" or "selective attraction," but merely "by the mutual repulsion between the particles of the fluid." He also proved that the fluid resides only on the surface of the body. To Coulomb, therefore, belongs the credit of having given the key to the mathematician, by means of which many of the secrets of nature were to be disclosed. The XVIIIth century was a period of great mathematical activity in France. The *Mécanique Analytique*, of Lagrange, and the *Mécanique Céleste*, of Laplace, were the foundations on which the physicists of the XIXth century built so successfully. Poisson showed that Coulomb's results could be explained by assuming that a particle of the electric fluid repelled another particle with a force inversely proportional to the square of the distance between them. Poisson's results were expanded by George Green—a self-educated Nottingham miller, who went up to Cambridge late in life, was fourth Wrangler in 1837, but died two years after he had been elected to a Fellowship at Caius College. His important papers, however, were written long before he went to Cambridge. Eight years after Green's Tripos, W. Thomson (Lord Kelvin) was second Wrangler. In one of his earliest papers he showed that Poisson's and Green's results could be obtained much more simply by the method of "electric images." He also realised the close connexion between the theories of heat, light, hydro-dynamics, and electricity, and so was enabled almost intuitively to predict many phenomena long before they were experimentally shown.

The Electric Fluid.—What the beginner first wants to know is what is the "electric fluid" which Coulomb talked about. Engineers talk about "current," "pressure," and "quantity," as if electricity were a fluid, and yet they say that it is not a fluid. Coulomb stated that it was an "imponderable fluid." Neither of these statements is accepted by the modern physicist, who will merely say that he does not know what electricity is. He can, however, predict with the greatest accuracy the magnitude of the effects produced by the electric "current," and the allowances that have to be made by the electrical engineer when designing machinery or systems of distribution owing to "factors of ignorance" are now very small.

Current.—We will first consider the electric

current. This may be produced in many ways. If we have a lump of metal supported on a glass rod, and give to the metal a "charge" by means of a rubbed piece of amber, then, if we connect it to a water-pipe by means of a copper wire, a transient current will flow in the wire discharging the lump of metal. In order to obtain a permanent current we would need to devise some method of continually communicating the charge, generated by rubbing amber, to the metal. We would have to make some form of frictional machine. A simpler way of obtaining an electric current is to put a plate of zinc and a plate of copper in dilute sulphuric acid, and to join the two plates by a copper wire. An even simpler way is to bring a permanent magnet rapidly into a closed coil of copper wire, but in this case the current would be transitory. In order to get a steady current by this method a special device, called a dynamo, built of copper coils and iron magnets, which can be moved relatively to one another at high speeds, is employed.

Effects Produced.—There are several ways of detecting the presence of an electric current. The most certain method is by the magnetic effects it produces. If we place the wire so that it is pointing to the magnetic north, and place it over the compass needle, the needle will be deflected towards the east or the west depending on the direction in which the current is flowing. Another method of detecting the current is by the heating of the wire. If the wire be getting rapidly hot, and the heat is not being conveyed by thermal conduction or radiation, an electric current is flowing in the wire. This method is only useful for detecting currents which are large compared with the current-carrying capacity of the wires in which they are flowing. When a current is flowing in an electrolyte, for instance, acidulated water or a solution of sulphate of copper, its presence can be detected by the chemical actions taking place at the points where it enters or leaves the electrolyte. Where it leaves the water bubbles of hydrogen will be produced, and where it leaves the copper solution copper will be deposited.

These effects of the electric current are used extensively in the arts. In electric lighting the current passing through the thin filament of the glow-lamp makes it white hot, and in this way the desired light is generated. Similarly, when the current passes through the strips of resistance material in the convectors used for electric heating, the material is heated, and the air in contact with it is warmed, and consequently rises. The room is thus heated by the convection currents. When we press the push of an electric bell the circuit is completed, and the current magnetising a small magnet the keeper is attracted, thus pulling back the hammer of the bell and at the same time breaking the circuit, and hence the hammer is kept vibrating as long as the circuit is completed at the push. The electrolytic effects of the current are utilised in electroplating, the electric refining of copper, etc.

Now, reasoning from the hydraulic analogy, the current is produced by something of the nature of a pressure, and the magnitude of the current will depend on the magnitude of this pressure as well as on the nature of the path it has to transverse. It has to be remembered, however, that on Coulomb's assumption, which he deduced from experiment, the electric fluid is imponderable, incompressible, and satisfies all the attributes of the perfect fluid of the mathematician. We should expect, therefore, the connexion between the pressure and the current produced to be much simpler than in the case of hydraulics. Before giving this connexion it is necessary to define with greater precision what we mean by pressure and current.

Potential.—The electric pressure between any point of a conductor and the "earth" is called the *potential* of that point. Electricians mean by "earth" any water-pipe or other large metallic conductor in contact with the earth, and they make the convention that the earth is at zero potential. If we have a wire carrying a current, and one point of it is at a potential of 100 volts, and if we touch this part and a water-pipe at the same time with damp fingers, a sharp shock will be felt, but if the potential were 10 volts it would be difficult to detect any shock. It will be seen that the physiological effect produced is a rough measure of the potential. We shall see later on that the potential of a point can be measured with the greatest accuracy by means of an electrostatic voltmeter. Now, the direction of current flow is considered to be from points of higher to points of lower potential, but in the present state of our knowledge of electricity it might equally well have been considered to flow in the opposite direction.

Ohm's Law.—From the fluid analogy we look upon an electric current as a quantity or "charge" of electricity flowing along the wire, and the measure of this current is the quantity that flows past a given cross-section in a second. The current flowing along a wire depends on the pressure between the two ends of the wire. This pressure is analogous to the "head" of water producing a flow along a pipe. It is equal to the difference of potential between the two ends. It also depends on the material of which the wire is made and its dimensions. The exact relation between the pressure and the current was discovered by Dr. G. S. Ohm in 1827, and is called Ohm's law. He found that along a wire carrying a current there was a uniform fall of the potential. He also found that the strength of the current, as measured by its magnetic effects, was proportional to the potential difference applied at the ends of the wire, provided that its temperature did not alter. In symbols, if C be the current, E the applied potential difference, and k a certain constant, we may write

$$C = k E.$$

The constant k is defined as the conductivity of the wire, and depends on the metal, the dimensions, and the temperature of the wire. A more usual way of writing this equation is

$$C = E/R,$$

where R is defined to be the resistance of the wire. We shall see in the next chapter that Ohm's law is the basis on which we make the calculations necessary for determining the size of wires used in wiring buildings for the electric light.

The Ampere.—It can be proved experimentally that the magnetic effects produced by a loop of wire in which an electric current flows are identical with those produced by a thin sheet of iron, the boundary of which coincides with the wire, magnetised uniformly, so that one face of the sheet is of north polarity and the other of south polarity. In order, therefore, to simplify the relations between the magnetic and the electric units a somewhat special value is given to the absolute unit of electric current. It is defined to be the current which flowing in a circular wire of unit radius, produces a certain mechanical force on a unit magnetic pole placed at the centre of the circle. For many purposes this unit is too large, and so the practical unit is taken to be equal to one-tenth of the absolute unit. This unit is called the ampere, after the celebrated mathematical physicist, André Marie Ampère, whose labours paved the way for Faraday's researches.

The Watt.—The "difference of potential" between any two points in a circuit may be defined as the work done when unit quantity of electricity passes from one to the other. It follows that current multiplied by potential difference is power, and the unit of potential difference is chosen so that unit current multiplied by unit electromotive force is one watt. The watt is a purely mechanical unit, and is the rate of working when 0·738 of a foot pound is done in one second, or when ten million ergs are done in a second. The erg is the centimetre-dyne unit of work, and is obviously a very small quantity. The watt is nearly equal to the 1·746th part of a horse-power.

The Volt.—The unit in which potential difference is measured is called the volt, after the Italian scientist, Volta. The "electromotive force" of a battery is the potential difference between its terminals when it is not supplying current to an outside circuit. When it is supplying an outside circuit, part of the electromotive force is utilised in driving the current through the battery itself, and hence the potential difference, or, as it is usually denoted, the P.D., between the terminals will be less than on open circuit. The batteries employed for working electric bells are usually Leclanché batteries. The electromotive force of these cells when new is about 1·5 volts, but after long use this voltage falls considerably. The values of the potential differences applied to the terminals of glow-lamps connected with public supply mains varies between 100 and 250 volts, and the voltage between a trolley wire and the rails is about 550. For power transmission, voltages as high as 60,000 or 70,000 volts are sometimes employed, and the voltages between the earth and a thundercloud must be measured by thousands of millions of volts.

The Ohm.—Having fixed the unit of current and the unit of pressure, Ohm's law determines the unit of resistance. It is the resistance through which a volt will maintain an ampere. Experiment shows that a column of mercury of uniform cross-section, 106·3 cms. in length, and of mass 14·4521 grammes at 0°C. will have a resistance of one ohm.

The resistance of some substances to the flow of electricity through them is found to be extremely high, whilst others offer little resistance to the electric current. For electrical purposes, therefore, they are divided into insulators and conductors. Typical insulators are india-rubber, resin, cotton, silk, wax, etc., and the metals more particularly silver, sodium, copper, gold, and aluminium are conductors.

Series and Parallel.—If we have a series of conductors A B, C D, E F, . . ., and if we connect B with C, and D with E, etc., they are said to be joined in series. If R^{I}, R^{II}, R^{III} . . . be the resistances of the conductors, and E^{I}, E^{II}, E^{III} the potential differences at their terminals, we have by Ohm's law

$$E^{I} = C R^{I}, E^{II} = C R^{II}, E^{III} = C R^{III}, \ldots$$

If E be the potential difference between the ends of the conductors connected in series we have

$$E = E^{I} + E^{II} + E^{III} + \ldots$$

Hence, if R be the resultant resistance,

$$C R = C R^{I} + C R^{II} + C R^{III} + \ldots$$

and, therefore, $R = R^{I} + R^{II} + R^{III} + \ldots$

If the ends A, C, E . . . be all connected together, and also the ends B, D, F . . ., the conductors are said to be connected in parallel. In this case

$$C = C^{I} + C^{II} + C^{III} + \ldots$$

and thus $E/R = E/R^{I} + E/R^{II} + \ldots$,

and $1/R = 1/R^{I} + 1/R^{II} + \ldots$

It will be seen that these formulæ enable us to calculate easily the effective resistance of conductors connected in series or parallel.

Let us take an eight candle-power 240-volt lamp for an example. When connected with the mains it takes a current of 0·12 of an ampère. By Ohm's law its resistance when hot is 240/(0·12), that is, 2,000 ohms. The power taken is 240 × 0·12, that is, 28·8 watts, and the efficiency is 8/28·8, that is, 0·28 of a candle per watt.

The resistance of fifty of these lamps in series would be 50 × 2,000 = 100,000 ohms, and their resistance in parallel, which is the ordinary way of connecting them in house circuits, is 2,000/50 = 40 ohms. In the latter case the current taken will be 6 amperes, and the power taken 1,440 watts. A Board of Trade unit is 1,000 watts for an hour, and hence the meter would register 1·44 units per hour when all the lamps were alight.

As another example let us suppose that a radiator used for electric heating has three pairs of lamps, each pair being joined in series so that we have three circuits and three switches. If the pressure of supply be 240 volts, and each circuit takes 2·5 amperes, then each lamp is converting 2·5 amperes at 120 volts into heat. Each lamp radiates, therefore, 2·5 × 120, that is, 300 watts, and consumes 300/1,000, that is, 0·3 of a unit per hour. The resistance of each lamp is 120/2·5, that is, 48 ohms; the resistance of a circuit 96 ohms, and of the three circuits in parallel 96/3, that is, 32 ohms. The six lamps would consume 6 × 0·3, that is, 1·8 units per hour, and if electricity costs 2d. per unit, the meter bill for the radiator giving the maximum heat would be a little more than 3½d. per hour, at two-thirds heat it would cost about 2½d. per hour, and at one-third heat a little less than 1¼d. per hour.

METROPOLITAN ASYLUMS BOARD.

AN ordinary meeting of the members was held on Saturday at the offices.

New Central Stores.—An adjourned report of the Works Committee relative to the new central stores and needle-room at Peckham Rye was considered. It appeared that the Local Government Board had written stating that they were prepared to approve the plans relating to this work at an estimated cost of 16,500*l.*, but they requested that before they did so the managers should consider whether an appreciable saving might not be effected by altering the plans somewhat. The Committee now reported that the architect was of opinion that to carry out the suggestions of the Local Government Board a saving of 380*l.* would be made, but seeing that the plans had received most careful and exhaustive consideration by the Contract Committee, they were of opinion that they should be adhered to.—It was resolved to send a communication to this effect to the Local Government Board.

Cleaning and Painting Works.—On the recommendation of the Hospitals Committee, it was resolved to carry out such cleaning and painting works at the infectious hospitals during the year as the Committee might determine after consultation with the Works Committee, either by direct labour or contract.

Quantity Surveyors.—Messrs. J. Waldram & Son, 12, Buckingham-street, Adelphi, were appointed to take out quantities of the proposed new workshops at Darenth Asylum, which are being constructed at an estimated cost of 3,500*l.*, at 1½ per cent. commission; and Messrs. J. Rider Hunt & Co., of 181, Queen Victoria-street, were appointed in a similar capacity at 2½ per cent. commission for cleaning and painting works at the Western Hospital, at an estimated cost of 1,220*l.*

Lighting of Tooting Bec Asylum.—The Asylums Committee submitted a report with reference to the provision of electric light and power at this asylum. At present the asylum is lighted by electricity generated on the premises by gas engines. When the additional buildings being erected were completed, it would be necessary to increase the plant at an estimated cost of 1,000*l.*, if they were to be lit with electricity. An offer had been received from the County of London Electric Supply Company to supply electricity to the whole asylum at a charge of 2¼d. per unit for lighting, and 1d. per unit for power, and reviewing all the facts the Committee recommended that an agreement be entered into with the company on these terms. After some discussion the recommendation was agreed to.

Obituary.

MR. BERNAYS.—Mr. Joseph Bernays, the eminent engineer and inventor of the centrifugal pump, died on December 24, aged seventy-one years, shortly after he had retired from practice. He became an Associate in 1877, and in 1884 a Member, of the Institution of Civil Engineers. Having joined the Society of Engineers in 1866, he was elected President in 1880, and afterwards a member of Council. Mr. Bernays, a native of Mayence, entered the Carlsruhe Engineering School, and then having settled in this country, soon acquired reputation as a hydraulic engineer; when about thirty years of age he set up in business as a consulting engineer, acting in that capacity for several large chemical manufacturing companies. He made prize-designs for a lift for the railway to the Jungfrau, and won many medals and awards in English and foreign exhibitions.

HERR OTTO BERNDOFF.—The death in Vienna, on January 2, is announced of Herr Otto Berndoff, aged sixty-eight years. He was Professor of Classical Archæology at the University of Vienna, and had won a high reputation with the results of excavations he made in Asia Minor.

General Building News.

PRIMITIVE METHODIST CHURCH, GLASGOW.—A new Primitive Methodist church, situated at the corner of Alexandra-parade and Millburn-street, Glasgow, was formally opened on the 3rd inst. The church is constructed with back and side galleries, with a special choir gallery, and there is seating accommodation for 500 people. The hall, which is underneath the church, is seated for 300, and has in addition two classrooms each seated for 80, besides vestry, gentlemen's and ladies' rooms, and tea-room. A feature of the façade is an octagon tower at the front, which is utilised internally for the back gallery and a special reservoir for the vitiated air, which is drawn off by means of an electric fan. The cost of the building is about 4,000*l.* The architect was Mr. James Chalmers, I.A., 93, Hope-street, Glasgow.

COUNCIL SCHOOLS, NORTHWICH.—On the 2nd inst. the Right Hon. Sir J. T. Brunner, Bart., M.P., opened new elementary schools, which have been erected in this town at a cost of 14,000*l.* They provide accommodation for 300 boys, 300 girls, and 200 infants. The architect was Mr. A. E. Powles.

ETON COLLEGE.—Mr. T. B. Carter's designs have been adopted for a gymnasium to be erected upon a site adjacent to Common-lane. The building, of red brick, will comprise a hall, 115 ft. by 56 ft., with galleries, and will be equipped with the most approved modern appliances.

CITY POLICE QUARTERS.—The blocks of buildings in Bishopsgate, to accommodate married officers and constables of the City Police force, with the ambulance station, will be erected by Messrs. Killby & Gayford, whose tender amounted to 16,723*l.*

NEW HALL, KIRTLEBRIDGE.—A public hall for the village of Kirtlebridge and district was opened recently by Colonel Irving, of Bonshaw. In measurement the hall is 40 ft. by 25 ft., and there are two ante-rooms. Mr. Jamieson, Annan, prepared the plans. The contractors were—Masons, Messrs. Irving & James Rae, Eaglesfield; joiner, Mr. Wm. Black, Annan; slater, Mr. J. Richardson, Annan; plasterer, Mr. Laidlaw, Ecclefechan; plumber, Mr. T. Duff, Annan; and painter, Mr. J. M'Culloch, Annan.

BANK PREMISES, KINGSTON.—New premises have been opened by the London and Provincial Bank at Kingston. The new building, which is built on the site at the junction of Clarence-street and Church-street, has cost nearly 10,000*l.* It is built of red bricks, with dressings of Ham Hill stone, by Mr. Frank Hawkey, from designs by Mr. Alfred Mason.

WORKHOUSE EXTENSIONS, ASTON.—The new south pavilion of the Aston Workhouse was opened a short time ago. The pavilion contains 122 beds, and with the exception of a future west wing to No. 2 pavilion, it forms the last extension that will be made for the male inmates of the present building. The contract with the builders, Messrs. Lee & Son, was signed in August of 1905, the tender being 8,411*l.* The architects were Messrs. C. Whitwell & Son.

WORKHOUSE INFIRMARY, OTLEY.—The new infirmary, which has been erected in connexion with the Wharfedale Union at Otley, was opened on the 1st inst. The building has cost about 8,000*l.*, and is built of Guiseley stone. It comprises three blocks united by corridors on the ground floor. In the centre are the rooms of the nurses; to the north of these are the men's wards, and to the south the women's wards, providing altogether accommodation for 75 beds. Each block has a small kitchen. Mr. W. H. H. Marten, of Bradford and Ilkley, was the architect; and the principal contracts have been carried out by Messrs. J. Hannan, Mr. Peter Patrick, and Messrs. Suttle & Sons, all of Otley.

PROMENADE EXTENSION, ST. ANNES.—At their meeting on the 31st ult. the St. Annes Council discussed the question of extending the promenade from East Bank-road to Fairhaven-road. The scheme, to cost 6,000*l.*, that was at first suggested was definitely dropped, and one submitted by the local surveyor (Mr. Gregson) was unanimously adopted. The cost of the new scheme will be about 3,000*l.* The sandhills are to be retained as they now are, but shrubs and starr grass are to be planted on them. An ornamental lake will run the entire length of the extension, and there will also be a rustic bridge, a fountain, and a fish pool. On the sandhills will be placed shelters, arbours, and pavilions. A bandstand with seating accommodation for 1,000, amphitheatre style, is also provided for. A feature of the extension will be an ornamental lighthouse rising 50 ft. high out of the sandhills with a look-out on the top.

ORPHANAGE ENLARGEMENT, ABERLOUR, N.B.—The Aberlour Orphanage is to be enlarged. The successful contractors for the extension are as follows:—Mason, Mr. Lawrence, Craigellachie; carpenter, Mr. Robb, Rothes; slater, Mr. C. Fraser, Aberlour; plasterer, Mr. Bain, Aberlour; plumber, Messrs. Fyfe & Son, Aberlour; and painter, Mr. Black, Dufftown. The architects are Messrs. Ross & M'Beath, Inverness.

OBSERVATORY, ALDERSHOT.—Mr. P. Y. Alexander has presented a fully-equipped military observatory to the Army Corps at Aldershot. The building has been erected near the headquarter offices in Stanhope Lines, and will be placed in the charge of the Royal Engineers, under Colonel J. E. Capper's direction. Sir H. Grubb, of Dublin, made the 8-in. refracting telescope, the clockwork driving mechanism, and all the fittings.

THE SALFORD BUILDING TRADE IN 1906.—It will be regarded as a curious fact that no new dwelling-houses have been erected within the Salford township during the past year. Eighty-six dwelling-houses have, however, been altered or partly rebuilt in order to bring them up to the requirements of the Health Committee in point of sanitation. Most of these previously had been closed by the committee. An explanation of the fact that no plans for dwelling-houses have been submitted is offered in the statement that the only land of any magnitude available for the erection of buildings is the large area near the new dock of the Ship Canal and Trafford-road, the whole of which has been reserved for commercial buildings. At present only three plots have been utilised for this purpose. In other portions of the township buildings for business purposes continue to increase, 66 having been built during the year, as against 40 in 1905. In the more residential districts of Broughton and Pendleton the average of building has been fully maintained. The abnormal figures of 1905 were entirely due to the carrying out of the Seaford-road housing scheme. In the Broughton district the general type of house put up is of the character likely to be occupied by the business man or superior tradesman, few having less than seven living rooms. In these houses baths are almost universal. In the Pendleton area 280 domestic dwellings have been built, 160 of which have less than six rooms. Of these smaller houses the majority are provided with bath accommodation. In response to the requests of organisations interested in promoting improved conditions in the laying out of land in districts developing into building areas the Building and Bridges Committee has given much time and thought to this subject. The committee will present no report upon the matter till their inquiries have been more fully pursued. As evidence of the desire of property-owners to assist in the work of the committee it may be stated that though notices have been served upon the owners of more than 540 buildings to repair portions of their premises which were considered structurally dangerous to the occupier, in no single instance has it been necessary for the Corporation to incur expense in the carrying out of the work. The Local Government Board has given its sanction to the borrowing of the capital necessary for the reconstruction of the Frederick-road bridges. The work is fairly well advanced, and it is hoped will be completed in the coming year. The Improvement Committee has acquired land in Frederick-road for the purpose of making the road 54 ft. wide. Negotiations are in progress for the acquisition of land in Whit-lane, Pendleton with the object of making that thoroughfare a uniform width of 42 ft. East Stanley-street has been widened and paved, and the Council has also agreed to acquire land in Bolton-road and Eccles New-road for street improvement.—*Manchester Guardian.*

PROPOSED CORN EXCHANGE, COVENTRY.—Mr. F. J. Wallis, barrister, recently held an inquiry at St. Mary's Hall, Coventry, on behalf of the Local Government Board, into an application by the City Council for the issue of a provisional order under sect. 303 of the Public Health Act, 1875, to alter or amend the Coventry Market House Act, 1863, to enable the Corporation to acquire the old post-office in Smithford-street for the purpose of a Corn Exchange, for the improvement of the Drinkwater Arcade adjoining, and to borrow the requisite money. The town clerk (Mr. G. Sutton) said a provisional agreement had been entered into by the Corporation with the Postmaster-General whereby the former would acquire the freehold of the old post-office for 3,500*l.* The proposed exchange would be on the first floor, and the ground floor would be adapted for shops. The City Engineer (Mr. J. E. Swindlehurst) gave details of the proposed structure.

GRAMOPHONE FACTORY.—Work has been commenced upon the new factory for Gramophone & Typewriter, Ltd., at Hayes, Middlesex. The factory will be on the single-story, north-light principle, and is to be completed before midsummer. The site, containing about 11 acres, is of sufficient area to allow of future extension of the works. The architect is Mr. Marshall Robinson, of London, and the contractors Messrs. Henry Lovatt, Ltd., of Wolverhampton.

THE NEWCASTLE BUILDING TRADE IN 1906.—Neither architects nor builders have been so fully occupied in Newcastle during the past twelve months as they were during the previous year. The city, of course, has been extending its borders, by the erection of streets of new houses for dwelling purposes—principally at Walker, Benwell, and the north end of Osborne-road. This is, however, a normal process; and so overbuilt have the open areas become that one may well wonder where, in a few years, there will be any land remaining within the city boundaries for dwelling-houses. The year just closed has brought, of course, many changes; but they have been, for the most part, changes that were in progress before and have been completed. On July 10 His Majesty the King opened the new railway bridge that had been built across the river Tyne by the Cleveland Bridge and Engineering Company, from the designs of Mr. Chas. A. Harrison, the North-Eastern Railway Company's engineer. The next day his Majesty inaugurated the completing wing of the Armstrong College, designed by Mr. W. H. Knowles and built by Mr. Lumsden, as well as the new Royal Victoria Infirmary, designed by Mr. Adams, of London, and Mr. W. Lister Newcombe, of Newcastle. Later in the year the new

Heath wing of the Durham University College of Medicine was opened. Other works undertaken—on behalf of the Corporation—have been the new baths and wash-houses at the corner of Gibson-street, and the addition to the City Hospital for Infectious Diseases at Walker. There is a prospect of greater building activity in the year that has just commenced than there has been in the year that is just ended. The City Council has resolved upon a great scheme of improvement in the extension of Market-street through to New Bridge-street, and the construction of new streets in the area lying between Pilgrim-street and Trafalgar-street, and Worswick-street and New Bridge-street. The consummation of this will depend upon the consent of the ratepayers being obtained to the promotion in Parliament of the Bill for the purpose; but, having regard to the existing condition of the Market-street extension, there seems little reason to doubt the giving of acquiescence. Recently the Council has been disposed to put more and more of its work in the hands of its own architectural staff, to the considerable disappointment of outside architects who are ratepayers; but in this scheme the Council exercised wisdom in calling local architects into consultation, and thus obtained the best possible advice as to what should be done. The work will involve the spending—including the amount already disbursed—of about 800,000*l*. So far as private enterprise is concerned, a good deal promises for the future. Insurance companies have purchased excellent sites in Mosley-street, where, during the last month or so, the work of demolition has been going on preparatory to rebuilding. Other buildings in the business part of the city are in contemplation. Further away building estates are being developed. The Two Ball Lonnen, for instance, which but the other day was a quiet country walk between the West Turnpike and the Stamfordham-road, is immediately to be transformed into a fine 60 ft. roadway, and there will be villas and other dwellings alongside it.—*Newcastle Chronicle.*

Appointment.

DARTMOUTH.—At a recent meeting of the Dartmouth Town Council, the General Purposes Committee having interviewed three selected candidates out of 159 for the office of Borough Surveyor and Sanitary Inspector, recommended the appointment of Mr. Thomas W. Joyce, of Redruth. The recommendation was agreed to.

Sanitary and Engineering News.

THE ROYAL SANITARY INSTITUTE.—The subject given this year for the essay in competition for the Henry Saxon Snell Prize was "Suggestions for Improvements in Sanitary Appliances for Use in Workmen's Dwellings and Labourers' Cottages, under the varying Conditions of Water Supply and Drainage Usually Obtaining in Towns and Villages." Nine essays were sent in, and have been brought under the consideration of the Council. Acting upon the advice of the adjudicators appointed by them, the Council have decided to divide the prize between two essayists, whose essays are about equal in merit, and they have awarded to Mr. John R. Preston, M. R. San. Institute, Lancaster, writing under the motto of "John of Gaunt," and to Mr. E. H. Parkinson, architect and surveyor, Bradford, writing under the motto of "Spero Meliora," each the sum of twenty-five pounds and a Bronze Medal of the Institute.

COMBINED DRAINAGE.—The Public Health and Sanitary Committee of Southwark Borough Council reported on Tuesday having passed the following resolution:—"That the attention of His Majesty's Government be drawn to the heavy burdens falling upon the Metropolitan Borough Councils owing to the recent decisions of the courts whereby the maintenance of combined drains on private property become chargeable as sewers to the rates, and that they be urged without delay to introduce a Bill to amend the provisions of the Metropolis Management Act, so as to relieve the local authorities of London of this obligation." Copies of the foregoing resolution are to be forwarded to the Prime Minister, the President of the Local Government Board, and the Members of Parliament for the borough. Fulham Borough Council, which in May last convened a conference of Metropolitan Borough Councils on the subject, and which Council afterwards received a letter from the Local Government Board to the effect that the Board was not in a position at present to promise to introduce legislation on the subject, is sending a circular letter to all the Metropolitan Borough Councils urging them to bring pressure to bear upon the Government to deal with the question without delay.

Foreign.

FRANCE.—The Municipal Council of Paris has voted a sum of 2,207,000 francs for the carrying out of a quay at Auteuil, between the Rue Wilhelm and the viaduct of the Point du Jour. ——M. Morize, architect, has been commissioned to construct at Vaugirard a building with cells of detention for female criminals, to take the place of the St. Lazare prison, which is to be demolished. The cost is estimated at 3,000,000 francs. The same architect has completed the plans for a prison for young culprits of both sexes, which will be built in the Grenelle district, at a cost of 2,450,000 francs.——The Municipal Council have also commissioned M. Formigé to carry out a decorative fountain with a medallion portrait, in memory of the late Eugène Dejean, architect in the Service of the Municipality, who has left an important legacy to the City of Paris. The fountain will be erected on the Place Pasdeloup, at the corner of the Boulevard des Filles du Calvaire.——M. Lacassin, architect, of Toulouse, has been elected President for 1907 of the provincial Architectural Society ("Société Regionnale") of the South of France. M. Pelletier has been elected President of the Architectural Society of "Saône et Loire, Ain et Jura." M. Porte has been elected President of the "Société Académique d'Architecture" of Lyons.——A monumental statue to Jacquart, or Jacquard, the inventor of the loom which bears his name, is to be erected in a public square in Calais. The inauguration is fixed for March 31 of next year. ——The Church of Nantua (Ain), which dates from the IXth century and is completely in Romanesque style, has been classed as a "Monument Historique."——M. Ferret, architect, has been commissioned to carry out the rebuilding and enlargement of the asylum at Trévoux, at an estimated cost of 221,000 francs.——A new abattoir is to be built at Soissons, with freezing-rooms for the preservation of meat. The cost is to be limited to 440,000 francs. The public abattoirs at Reims are also to be rebuilt, at a cost not to exceed 1,800,000 francs.——The retirement is announced, owing to superannuation, of M. Tropey-Bailly, architect in the Municipal Service of Paris.

GERMANY.—An important work will shortly be published by Professor Cornelius Gurlitt, on the architecture of Constantinople. Turkish art will be represented in quite a new light, for the celebrated author has been granted permission, hitherto denied to all, to make drawings and photographs of the mosques and palaces of the Turkish capital. The illustrations in the book will include about 200 photographs, besides drawings of ancient Byzantine buildings restored (on paper) under Professor Gurlitt's directions.——Up to 1885 there existed in Germany only one masonry bridge arch over 40 metres wide, whereas now there are over forty with spans of from 60 metres to 90 metres; while their piers bear the slight ratio of $\frac{1}{8}$ to 1-11. The important competitions of modern times have shown that even under difficult circumstances and with spans of 100 metres, stone constructions are preferable to iron ones. Even in point of economy the ferro-concrete bridge has no decided advantage over stone and concrete.——An interesting paper was recently read before the Berlin Society of Engineers dealing with the development of public baths. In Germany, up to the middle of the XVth century, bathing establishments were numerous and well frequented, but the Thirty Years War abolished those buildings and custom, and no public bath weathered the storm, persons even found bathing being severely punished. In 1804 the first large public bath was built in Vienna, and in 1842, in England, the novelty was introduced by combining washing baths for the working classes with the swimming bath, Parliament strongly recommending municipalities to encourage such buildings. The French Government followed suit in 1850, and five years later Hamburg built the first large baths in Germany. Orders were then issued introducing baths into barracks, schools, factories, etc., and the magnificent baths built in Berlin in the nineties show how much these establishments are appreciated. ——From June 15 to the middle of September, an international exhibition, under the patronage of Archduke Josef Ferdinand, will be held in Olmütz. The exhibits will include the newest inventions and improvements used in art, trade, agricultural, and other circles.——The practical application of wireless telegraphy has made much greater progress than is usually allowed. The three large companies—the German Telefunken Society, the Italo-English Marconi Society, and the French de Forest Company, have no fewer than 217 stations on land. About half of these belong to the German Company, which has built 107 stations, over 50 of these being in Europe, while the rest are scattered over North and South America, Asia, and the West Indies. As far back as 1904 this same Society had erected their apparatus on 200 ships, and so important is the invention to the merchant service that the time is not far distant when every big vessel will carry a wireless telegraphy installation on board.——On December 5 died Adolf Goering, Principal of Berlin Technical University. The Professor had made a special study of iron construction with reference particularly to railway stations, and it is owing to his scientific method of treating the latter that German railway stations are the best planned in the world.

Miscellaneous.

PROFESSIONAL AND BUSINESS ANNOUNCEMENT.—Messrs. Chatterton & Couch, architects, have removed their offices from 6, Gordon-place to 82, Victoria-street, S.W.

THE EDINBURGH NEW ART SCHOOL.—The joint-committee who have the new Art School project on hand, met on the 2nd inst. in the Council Chambers. Mr. Dick Peddie, architect, submitted a new block plan which he has re-arranged from the original sketch plans by Mr. Pittendrigh MacGillivary, R.S.A., who, it seems, has resigned his position on the Committee as one of the Academy's representatives. An important alteration is that Mr. Peddie has now arranged the building in the form of a parallelogram, which will permit of straight corridors, one end of which can be seen from the other. The grouping of the rooms has in consequence also been somewhat changed. The cast gallery is now formed by covering in a portion of the east court, and the museum is placed in the position where the cast gallery formerly was. Instead of a theatre, a central hall is provided on the first floor with a suitable stage. It is proposed to place the apartment set aside for painting *en plein air* on the roof in place of in the east court. Instead of four staircases, there is now one central staircase, 9 ft. 6 in. wide, directly facing the main entrance, and all the corridors, which are straight from end to end, are of the same breadth as the stair. The only material difference in the accommodation is that a life room is provided for women studying sculpture, and that the women's-room for painting from the nude is largely increased in size, and that all the professors have studios which will be equipped for practical work. The Committee decided to recommend the Town Council to approve of the revised plans, to take further steps to have them carried into effect.—*Scotsman.*

A GIFT TO THE QUEEN OF NORWAY.—The women of Christiania have presented to the Queen of Norway a decorative piece of chased silver work, of which Herr Prydtz, the architect, made the general design. The ornamental figure-groups, representing scenes of Norwegian history, are by Herr Utne, the sculptor.

GEORGE HERRING MEMORIAL.—Mr. George Wade will be the sculptor of a bust of the late Mr. Herring, the philanthropist, to be placed in the Mansion House.

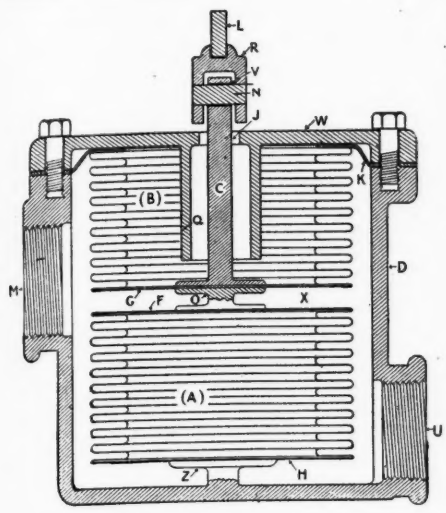
RUSKIN PARK, DENMARK HILL.—Mr. F. Trier, of Uplands, Champion-hill, S.E., honorary secretary to the committee, asks for contributions to a fund wherewith to purchase the remaining 12 acres of an open space which adjoins Ruskin Park, and will, otherwise, be purchased for building purposes.

ROCKLAND ST. PETER, NORFOLK.—A building fund is opened for the reparation of the parish church, near Attleburgh. The church, of early English date, has a roof of thatch, and a round tower—a feature not uncommon in the county—which is cracked and in a dangerous condition.

AMERICAN PRESENTATION TO SIR ASTON WEBB.—The American Institute of Architects on the 8th inst. presented Sir Aston Webb with a gold medal for distinguished achievement in architecture on the occasion of a dinner at the Corcoran Art Gallery in celebration of the golden jubilee of the Institute. Mr. Howard read a letter from Lord Knollys on behalf of the King, asking him to convey to the President of the Institute his Majesty's satisfaction on hearing of the first medal given to an Englishman and one of such professional repute as Sir Aston Webb, and wishing every success to the Institute. Mr. Howard's first speech as Chargé d'Affaires contained a graceful allusion to the conspicuous honour done to an Englishman, which he felt was justified. Sir A. Webb had in the development of the Queen's Memorial given London something it lacked in the splendid continuation of a spacious avenue and in monumental architecture. In acknowledgment Sir A. Webb said that he recognised that the award was bestowed through the desire of Americans to honour English architects. He alluded to the rebuilding of the Quadrant in Regent-street as an example of architectural improvements in London similar to designs carried out in American cities. He also instanced a great improvement scheme for Washington prepared by the Columbia Park Commission, promising when completed to make the capital one of the beauty spots of the world.—*Times Correspondent.*

THE "SYLPHON" DAMPER REGULATOR.—This device, which has recently been introduced by the American Radiator Company, is intended for controlling the dampers of hot-water boilers, so as to maintain uniformity of temperature in the systems of heating pipes connected therewith

Unlike some appliances employed for the same purpose the regulator contains no perishable parts, requires no auxiliary power to assist its operation, and its action does not depend upon the thermal expansion or contraction of metal. A section of the regulator is given in the accompanying illustration, where (D) is a cast-iron



chamber fitted with two metal bellows ; (A) and (B) each formed of tinned brass, (A) containing chemicals which are extremely sensitive to temperature changes, the active agent being of a gaseous nature ; while (B) serves the purpose of counteracting the effects of pressure exerted by the hot water circulating through the chamber and around the bellows. The folds in the flexible walls of the bellows afford a large conducting and radiating surface, facilitating the transfer of heat to the highly sensitive chemicals within the bellows, and thus causing the regulator to respond immediately to minute temperature changes. As the temperature rises, the chemicals within the bellows (A) exert a gradually increasing pressure tending to expand the bellows, and as soon as the pressure has become sufficient to overcome the weight of the counterpoise on the damper lever, the bellows expand, forcing the plate (F) in an upward direction, until the base of the plunger (C) strikes against the bottom of the stop (Q). Conversely, as soon as the temperature commences to fall, the bellows contract, bringing down the plunger (C) and opening the damper proportionately to the drop of temperature. The rocker (R), which carries the damper lever (L), oscillates about two pivots, which are made of brass, while the journals are brass lined. The rocker is permanently pivoted to the top of the chamber (D), so that in installing the regulator the damper lever can be readily placed in position by passing it through a slot and secured by tightening a small set-screw provided for the purpose. This arrangement makes it possible to adjust the lever in the direction of its length, as is frequently desirable. By shifting the counterpoise weight along the damper lever, the regulator can be made to control the temperature of the boiler between 90 degrees and 190 degrees Fahr. On a sensitive hot water boiler, the "sylphon" damper regulator is said to be capable of controlling the temperature of the water with 1 degree Fahr. When the flow main from the boiler is of greater diameter than 1¼ in., the regulator is fitted by connecting it between the flow and return mains with 1¼ in. diameter pipe. When the flow main is 1¼ in. or less, the regulator is simply connected direct to the flow pipe. Any other method of connexion which avoids the formation of air pockets and insures a free circulation of hot water through the regulator, is equally effective. The appliance takes up very little room, being only 6 in. high by 5 in. in diameter. The makers state that the thermo-sensitive chemicals employed in the bellows are absolutely non-flammable, and non-explosive, and are not injurious to the human system unless taken in excessive quantities.

THE DISCOVERIES NEAR FOLKESTONE.—In the course of some operations undertaken to widen the road between Folkestone and Dover, an interesting discovery has been made of some twenty-four skeletons. The place where this discovery has been made is on the top of the hill about two miles out of Folkestone close to a chalk pit. The road to Dover here reaches the level of the downs, some 500 ft. above sea level, and the skeletons have been found in the bank so close to the road that a person standing on the road can touch those lying nearest to it. The skeletons all lie close together, having in most cases been buried with the heads to the west in three lines of graves, although in the centre of the little plateau one or two lie north and south. They are in many cases perfect skeletons, and include one or two small skeletons as of children. In most cases coins such as disks lie on the shoulder. At present we believe only two coins have been discovered, which it is stated have been identified as Roman coins, but the excavations are being continued. There are no traces of any coffins or sarcophagi ; the skeletons are lying at present *in situ* in the chalk, and they occupy a space of some 40 ft. by 15 ft.

GARDEN SUBURB FOR BIRMINGHAM.—The Housing Committee of the Birmingham Corporation has prepared a report to be presented at the next meeting of the City Council with reference to the disposal of the large area of land at Bordesley-green. The committee has unsuccessfully advertised for tenders for the land, and they have now received an offer from the Ideal Benefit Society to take it on lease. In their recent report recommending a housing policy for adoption, the committee expressed the view that, in order to secure the proper development of the outer parts of the city, land should be purchased and leased for building purposes. They also made reference to the assistance given by certain municipalities in Germany to public utility building societies and recommended that facilities should be given, where possible, to assist the provision of cheerful, healthy houses by private enterprise in Birmingham. The Society's offer is as follows :—The land to be leased to the Society for one hundred and nine years, from June next, the rent to be, first year, peppercorn ; second year, 200*l.* ; third year, and to the end of the term, 400*l.* per annum ; the period of development to be ten years from the commencement of the term. The Society is to lay out an open space and construct the roads at a cost of not less than 4,000*l.* ; to spend at least 12,000*l.* in building on the land within three years, and a further sum of not less than 28,000*l.* within the ten years allowed for development, and not to erect more than twenty-two houses to the acre. The site is to be laid out to the approval of the committee, and the buildings are to be suitable to the artisan class. The Corporation is to contribute 4,000*l.* as their proportion of the cost of laying out the open space, sewering, etc. The Society has secured the option of some land adjoining that belonging to the Corporation, and if their offer is accepted this adjoining land will be included in the general scheme for a workmen's garden colony. It is estimated that at the end of twenty-two years the Corporation will begin to make a profit, and by the expiration of the lease they will have made a total profit of 22,002*l.*

SCOTTISH ACADEMY ASSOCIATES AND HON. MEMBERS.—A General Assembly of the Royal Scottish Academy was held in the Library on the 4th inst., Mr. Hippolyte J. Blanc, deputy-president, presiding. The following Associates, recently elected, were presented with their diplomas and relative medals :—Mr. R. M. G. Coventry, painter ; Mr. Percy Portsmouth, sculptor ; and Mr. James Miller, architect. The Committee of Exhibition Arrangements were elected. Having regard to their respective achievements in art, the General Assembly unanimously resolved to place the following artists on the list of Honorary Members of the Academy :—Sir Thomas Drew, P.R.H.A., architect ; Mr. John F. Sargent, R.A., portrait painter, and M. Auguste Rodin, sculptor.

EDINBURGH EXHIBITION BUILDINGS.—A meeting of the Executive Council in charge of the arrangements for the Scottish National Exhibition that is to be held in Edinburgh next year, was held at 45, York-place, Edinburgh, on the 3rd inst., Sir Robert Cranston, Chairman of the Executive, presiding. Preliminary reports were received from the General Purposes, Building, and Printing and Advertising Committees. On the subject of the advertising of the exhibition, it was decided that two prizes of 50*l.* and 20*l.* respectively be offered for the best designs for a poster regarding the exhibition. With regard to the proposed competitive plans, it was agreed to appoint a Scottish architect of standing to act as assessor, and practically to adopt the regulations as to architectural competitions prepared by the Royal Institute of British Architects. In the instructions given to architects it is pointed out that provision must be made for a conservatory shelter, a concert hall, to accommodate 2,500 people, with platform and accommodation for large orchestra and organ, a permanent bandstand and a bridge over the Water of Leith. The architect of the design that is awarded the first prize premium, will be appointed architect of the exhibition ; the author of the second prize design will receive 100*l.* ; and the author of the third 75*l.* Architects will be advised by the Executive to keep in view, in preparing their plans, that the entrance to the grounds are to be :—(1) By the bridge over the Water of Leith adjacent to the car terminus at Gorgie ; and (2) by Balgreen-road, which probably will be the main entrance. It is also suggested that the architects should show a general scheme of laying out the grounds, garden, and river for exhibition purposes, and that in connexion with the buildings they should introduce any exhibit, amusement, or other attraction which they may consider desirable. It is expected that the work of erecting the exhibition buildings at Saughton will be begun early in the summer.

BUILDING BY-LAWS.—The Secretary of the Incorporated Association of Municipal and County Engineers has sent a circular letter to the Metropolitan Borough Councils calling attention to the Public Health Acts (Building By-laws) Bill, and Architects' Registration Bill, both of which, in the opinion of the Association, contain clauses prejudicial to the interests of local authorities. The Councils are urged to oppose the Bill.

CROYDON POLYTECHNIC BUILDING CLASS.—On Saturday afternoon last, by permission of Messrs. Waring & White, a party of about seventy students attending the Building Construction classes at the Croydon Polytechnic visited the new offices of the *Morning Post* and the Waldorf Hotel now being erected in Aldwych. The party, under the leadership of Mr. J. Crewdson, their lecturer, thoroughly appreciated the visit, and evinced much interest in the methods of construction employed. They were shown over the buildings by members of the contractors' staff.

PRESERVATION OF THE OLD WALLS, ETC., AT NEWCASTLE.—The report of the sub-committee on the old walls and towers of the city, of which Mr. C. G. Binks was Chairman, came up for general consideration at a meeting of the Finance Committee of the Newcastle Corporation on the 3rd inst. At the outset the committee confirmed the recommendation that the Sallyport Tower should be acquired for a mortuary and coroner's court at an annual rental of 30*l.* on a lease of ten years. The cost of the alterations will be 358*l.*, whilst if the alternative scheme of a corrugated iron mortuary had been approved of the cost would have been 1,200*l.* The report of the sub-committee on the preservation and acquisition by the Corporation of the old walls and towers of the city was considered. It was agreed to acquire from the various guilds, companies, and other parties concerned the whole of the west walls, to be preserved in perpetuity as a freehold for the Newcastle Corporation. It was shown from the financial side that for a payment of 1,100*l.* the whole of the walls and their surface could be secured to the city. There was some discussion as to whether negotiations should be continued for the securing of the Plummer Tower. It was pointed out that this tower might have to be sacrificed to the Market Street Extension Scheme, but by a vote of ten to two it was recommended that negotiations might be renewed, if desirable, by the Corporation, as distinct from the sub-committee, which has all along been engaged in the work.

TICKHILL, YORKSHIRE.—In terms of the will of the late Mr. Henry Shaw, of Tickhill, who formerly traded as a brickmaker at Balby, near Doncaster, a sum of 1,500*l.* and some house property near the market-cross, Tickhill, are bequeathed in trust to the Urban District Council for the erection of a public library and reading-room upon the site.

WOOLWICH BOROUGH ELECTRICTY SUPPLY.—A report has been made by Sir Alexander Kennedy upon the two existing generating-stations, in which he recommends that the principal work should be carried on at the Woolwich station, where, with some small alterations, all the necessary power could be generated, and that the station at Plumstead, where is more high-tension machinery than is needed, should be maintained as a minor source of supply. Sir Alexander Kennedy suggests that a large saving might be effected by feeding the dust destructor at Plumstead by self-feeders instead of manual labour, and an immediate saving by abolition of the wiring department.

Patents of the Week.

APPLICATIONS PUBLISHED.*

20,399A of 1905.—G. MAYER : *Door and other Locks.*

This relates to mechanism for door locks, padlocks, and such like locks, and is characterised by a case in the centre of which a bolt furnished with wings or projections is mounted, said wings or projections being provided with slots.

22,778 of 1905.—F. SWINBURNE and J. E. CALKIN : *Air Inlet Valve or Ventilator for Drains and Plates.*

This consists in the combination of a ball valve fixed in a cast-iron cover for use as a fresh-air inlet for drains and the like, the ball being of celluloid or other suitable material, and running in a specially-shaped tube to allow the free access of air down the drain when the ball has been forced back by outward air pressure, and returning by means of gravitation and fitting into a cupshaped diaphragm, thus preventing the escape of foul air or other gases.

* All these applications are in the stage in which opposition to the grant of Patents upon them can be made.

PATENTS.—*Continued on page* 47.

List of Competitions, Contracts, etc.

For some Contracts still open, but not included in this List, see previous issues. Those with an asterisk (*) are advertised in this Number: Competitions, iv.; Contracts, iv. vi. viii. x. Public Appointment, xvi.; Auction Sales, xxvi. Certain conditions, beyond those given in the following information, are imposed in some cases, such as: the advertisers do not bind themselves to accept the lowest or any tender; that a fair wages clause shall be observed; that no allowance will be made for tenders; and that deposits are returned on receipt of a bonâ-fide tender unless stated to the contrary.

Competitions.

* JANUARY 19.—**Gorton.**—SCHOOL.—Architects wishing to submit designs for proposed Council School, Thorwood-avenue, are invited to apply for permission to do so. Application must be made on prescribed form, which may be obtained from the Secretary, Education Office, Town Hall, Gorton, by Saturday, January 19.

JANUARY 31.—**Sunderland.**—LIBRARIES.—Sunderland Corporation invite competitive designs from architects practising in the borough for branch libraries to be erected in Church-street North and Villette-road. Premiums of 20*l.* and 10*l.* are offered for the first and second designs for each of the two libraries. Instructions to competitors and lithographed plans of the sites may be obtained from Mr. John W. Moncur, Assoc.M.Inst.C.E., Borough Engineer, Town Hall. Designs are to be delivered, free of cost, at the office of the Borough Engineer, Town Hall, before 12 o'clock at noon on January 31.

FEBRUARY 1.—**Mallow.**—MONUMENT.—The Memorial Committee for the J. J. Fitzgerald Monument invite designs from sculptors for the proposed monument to be erected to the memory of the late Mr. J. J. Fitzgerald, B.A. (R.U.I.). The monument to consist of a bronze bust, with suitable pedestal, with insertion of a bronze figure relief of an Irish emblem and space for inscription. Cost not to exceed 300*l.* All designs to be sent in on or before February 1 to Messrs. Wrixon & Hanley, hon. secretaries, Bank-place, Mallow.

* MARCH 3.—**Castleford.**—SCHOOL.—The Governors of Castleford Secondary school invite competitive designs from architects practising in the West Riding, Yorkshire, for a dual secondary school (accommodation 300) in Healdfield-road, Castleford. Premiums 50*l.* and 25*l.* respectively for designs placed 1st and 2nd. All particulars, with plan of site, obtainable on written application to the Clerk to the Governors, Station-road, Castleford, enclosing stamped, addressed brief envelope, and deposit of 10s. 6d., returnable on receipt of *bond-fide* design, which must be delivered on or before noon of March 3.

* MARCH 15.—**Bishop Auckland.**—SCHOOL.—Plans are invited for a secondary school at Bishop Auckland. Author of selected to be employed to carry out work at a commission of 5 per cent. Premiums of £20 and £10 will be paid for those placed second and third respectively. Plan of site, conditions of competition, and terms of employment may be obtained from the Secretary for Higher Education, Shire Hall, Durham, to whom plans, carriage paid, must be delivered not later than noon on March 15.

Contracts.

BUILDING.

JANUARY 12-28.—**Ipswich.**—SCHOOL WORKS.—Ipswich Education Committee invite tenders for the execution of certain alterations at the (*a*) Foundation-street School premises, and the (*b*) Turret-lane School premises. The plans may be seen on application to the architect, Mr. E. T. Johns, of Tower-chambers, Tower-street, Ipswich, from whom may be obtained a copy of the specification in the case of the Foundation-street premises, and of the specification and bill of quantities in the case of the Turret-lane premises (on deposit in the latter case of 1*l.* 1s.). Application in either case must be made to the architect not later than January 12. Sealed tenders, plainly endorsed "Tender for Foundation-street Premises," or "Tender for Turret-lane Premises," as the case may be, must be delivered to Mr. J. Hepburn Hume, Secretary, Ipswich Education Offices, Tower House, Tower-street, Ipswich, between 10 a.m. and 12 noon on January 28.

JANUARY 12.—**Maesteg.**—DRILL HALL.—A drill hall at Maesteg for the 2nd V.B. the Welsh Regiment. Names to Messrs. Teather & Wilson, F.'s R.I.B.A., architects, Andrews'-buildings, Queen-street, Cardiff, before January 12, after which date bills of quantities will be supplied.

JANUARY 14.—**Old Trafford.**—OFFICE EXTENSION.—Stretford U.D.C. invite tenders for the work and materials required in alterations and additions at the Council Offices, Old Trafford. The drawings may be seen, and specification, etc., obtained, on application to Mr. Ernest Worrall, the Council's Surveyor, on payment of a deposit by cheque of 3*l.* 3s. Sealed tenders, on the form supplied, endorsed "Office Extension," and addressed to the Chairman, are due at the Council Offices by January 14.

JANUARY 14.—**Tibshelf.**—SCHOOL.—Derbyshire Education Committee invite tenders for the erection of Tibshelf Council School, to accommodate about 320 children. Drawings, etc., to be seen at the office of the Architect to the Committee, Mr. George H. Widdows, A.R.I.B.A., County Education Offices, S. Mary's Gate, Derby. A copy of the bill of quantities, etc., may be obtained at the Architect's office upon payment of 1*l.* 1s. Sealed tenders, in envelopes provided for the purpose, endorsed "Tender for New Council School, Tibshelf," must be delivered to the Architect not later than 3 p.m. on January 14.

JANUARY 14.—**Withernsea.**—HOUSES.—The whole of the work required in the erection and completion of three dwelling-houses, South Cliff, Withernsea. Quantities can now be obtained from Messrs. Clough & Wrigglesworth, estate agents, Hull, upon a deposit of 10s. Tenders to be forwarded not later than January 14 to Messrs. Clough & Wrigglesworth, Welton-chambers, Jameson-street, Hull, endorsed "Tender for Three Houses."

JANUARY 15.—**Bromley.**—CART SHED.—Bromley B.C. invite tenders for the supply and erection, complete upon foundations provided by the Council, of a steel-frame cart shed, open all round below eaves, 50 ft. square on plan, with segmental roof and covered with galvanised sheets, in accordance with plans, etc., which may be seen at the office of the Borough Engineer, on payment of a deposit of 10s., at office of Mr. Fred. H. Norman, Town Clerk, Bromley, Kent. Tenders, endorsed "Cart Shed," must be delivered to Town Clerk not later than 3 o'clock on January 15.

JANUARY 15.—**Kingswear.**—VILLAS.—Two semi-detached villas at Kingswear for Messrs. W. H. Angel & J. Efford. The drawings and specification, form of contract and tender may be seen at the office of Mr. T. O. Veale, surveyor, Castle View, Dartmouth, any day up to January 15 inclusive, on which day tenders should be delivered at Captain Angel's house, Columba, Above Town, Dartmouth.

JANUARY 16.—**Brierley Hill, Bradford.**—HOSPITAL BUILDINGS.—The Bradford Corporation invite tenders for works of all trades required to be done in the erection of discharge block and laundry at the City Hospital, Brierley Hall. Drawings and general conditions of contract may be seen, and bills of quantities and form of tender obtained, on application to the City Architect, Whitaker-buildings, Brewery-street, Bradford. Sealed and endorsed tenders must be sent to Mr. Frederick Stevens, Town Clerk, Town Hall, Bradford, not later than 12 o'clock noon on January 16.

JANUARY 16.—**Leeds.**—CHAPEL, ETC.—Leeds Corporation invite tenders for the whole of the works required in the erection of chapel and other buildings at Harehills Cemetery site. Plans, conditions of contract, etc., may be seen, and bills of quantities and forms of tender obtained, at the offices of Messrs. Connon & Chorley, architects, 16, Park-place, Leeds. Tenders, endorsed "Harehills Cemetery," to be delivered at the Town Clerk's office, Town Hall, on or before January 16.

JANUARY 16.—**Retford.**—SHEDDING, ETC.—The Council of Nottinghamshire Agricultural Society invite tenders for the erection of shedding, grand stand, offices, etc., for the show to be held at Retford on Whit-Tuesday and Wednesday, May 21 and 22, 1907. Specifications may be obtained, and plans seen, at the Secretary's office, from 9.30 to 6 p.m. Tenders must be sent in not later than January 16 to Mr. W. H. Bradwell, Secretary, Thurland-street, Nottingham.

JANUARY 17-30.—**Fowey.**—POLICE CELLS.—Police cells and other works at Fowey for the Cornwall Standing Joint Committee. Names and addresses to the architects, Messrs. Thornely & Rooke, 11, The Crescent, Plymouth, not later than January 17. Tenders, endorsed "Tender for Police Cells, etc.," are to be delivered, addressed to Mr. Christopher L. Cowlard, Clerk to the Cornwall C.C., Bodmin, on or before 12 o'clock noon on January 30. Bills of quantities on application to the architects on payment of 1*l.* 1s.

JANUARY 17.—**Hopeman.**—BUILDINGS.—The mason, carpenter, plumber, slater, plaster, and painter works of new buildings at Harbour-street, Hopeman. The plans and specifications may be seen with Mr. John Wittet, architect, Elgin, with whom estimates must be lodged on January 17.

JANUARY 18.—**Seaham Harbour.**—ALTERATIONS, ETC., TO PREMISES.—The Seaham Harbour Co-operative Society invite tenders for the proposed alterations and additions to their premises at Seaham Harbour. Plans may be seen upon application at the office of the architects, Messrs. Wm. and T. R. Milburn, F.R.I.B.A., architects, 20, Fawcett-street, Sunderland, and quantities obtained on payment of a deposit of 1*l.* 1s. Tenders to be sealed and endorsed and to be delivered to the architects by 9 a.m., January 18.

JANUARY 18.—**Torpoint.**—ANTE-ROOM, ETC.—The Trustees of the Good Templars' Hall, Torpoint, are desirous of receiving tenders for the erection of new ante-room, scullery, lavatories, etc.; also for heating and renovating the hall. Copy of specification will be forwarded on application to the architect (Mr. Arthur J. Abbott, P.A.S.I., 31, High-street, Totnes), enclosing deposit of 10s. 6d. Plans can be seen on the site on application to Mr. R. Nodder, Wellington Cottage, Torpoint, between the hours of 10 a.m. and 4 p.m. Tenders to be sent to the architect on or before January 18.

JANUARY 19.—**Alnwickhill.**—COTTAGE.—Edinburgh and District Water Trustees invite tenders for the mason and brick, carpenter and joiner, plumber, slater, and plaster and cement works in connexion with the double cottage, etc., proposed to be erected at Alnwickhill. Schedules of quantities may be had on application to Mr. Edward C. Carse, architect, 37, Frederick-street, Edinburgh, at whose office plans of the proposed double cottage, etc., may be seen. Tenders, endorsed "Double Cottage, etc., Alnwickhill," must be lodged with Mr. William Boyd, W.S., Clerk to the Trust, Edinburgh and District Water Trust Offices, 12, St. Giles's-street, Edinburgh, not later than January 19, at 10 a.m.

JANUARY 19.—**Brynteg.**—SCHOOLROOM.—For erecting new schoolroom at St. Peter's Church, Brynteg. Plans, etc., may be seen, and bill of quantities obtained, at the office of Mr. T. Moss, architect, 2, Temple-row, Wrexham. Tenders, sealed and endorsed, to be sent to the Rev. Ll. Jenkins, Bryn-heulog, Brymbo, by noon on January 19.

JANUARY 19.—**Craigrothie.**—ALTERATIONS.—For mason, joiner, plumber, plasterer, and slater's work of alterations on Craigrothie School, for the Ceres School Board. Plans, etc., may be seen at Miss Scougall's, Craigrothie, and tenders must be lodged by 10 a.m. on January 19 with Mr. Jas. Pearson, Clerk to School Board, Ceres. Further information may be had from Mr. C. F. Anderson, architect, St. Andrews.

JANUARY 19.—**Ferryhill, Durham.**—LOCK-UPS.—Tenders are invited for the erection of new lock-ups at Ferryhill and Witton Park. Plans may now be seen, and bills of quantities obtained, at the County Surveyor's office, Shire Hall, Durham. Sealed tenders, properly endorsed outside, to be delivered to Mr. William Crozier, A.M.Inst.C.E., County Surveyor, on or before January 19.

* JANUARY 19.—**Gosport.**—POLICE-STATION.—The Southampton C.C. are prepared to receive tenders for alterations to the Gosport Police-station. Plans, specification, and conditions of contract may be seen, and bills of quantities, etc., obtained, from Mr. W. J. Taylor, County Surveyor, The Castle, Winchester, on and after January 7, between 9 a.m. and 5 p.m. (Saturdays, 9 a.m.—1 p.m.). Tenders, endorsed "Proposed Alterations, Gosport Police-station," to be delivered to the Clerk, The Castle, Winchester, on or before January 19.

JANUARY 19.—**Kilbeg, Kells.**—ALTERATIONS, ETC., TO HOUSE.—Alterations and additions to the Parochial House at Kilbeg, Kills, Co. Meath, for the Rev. J. Clavin, P.P. Plans and specifications are to be seen at the offices of the architect, Mr. Thomas F. M'Namara, 50, Dawson-street, Dublin, and at the Parochial House, Kilbeg, Kells. Tenders will be received not later than January 19, addressed to the Rev. J. Clavin, P.P., Kilbeg, Kells, Co. Meath.

JANUARY 19.—**Otley, Kippax, etc.**—SCHOOL WORKS.—The West Riding Education Committee invite tenders for new school at Otley and alterations to existing school; Kippax Provided School, additions and alterations; West Tadcaster Provided School, additions and alterations (builder, joiner, slater, plumber, plasterer, painter). New school at Thorne, near Doncaster (builder, joiner, slater, plumber, plasterer, painter, ironfounder. Plans may be seen, and quantities obtained, on application to office of Mr. J. Vickers-Edwards, County Architect, County Hall, Wakefield. A deposit of 1*l.* is required in each case. Cheques to be sent to the West Riding Treasurer, County Hall, Wakefield. Sealed tenders, properly endorsed, to be sent to the Architect not later than 10.30 on the morning of January 19.

JANUARY 21.—**Brighton.**—ALTERATIONS TO SCHOOL.—The Education Committee invite tenders for certain alterations and additions to Hanover-terrace Council Schools, Brighton. Plans and specification of the work may be seen, and a copy of the bills of quantities obtained, at the offices of the Surveyors to the Committee, Messrs. T. Simpson & Son, 17, Ship-street, Brighton. A payment of 3*l.* will be required for each copy of the quantities. Sealed tenders, endorsed "Tenders for Alterations and Additions to the Hanover-terrace Schools," to be addressed to Mr. E. Hackforth, Clerk to the Committee, Offices of the Committee, 54, Old-steine, Brighton, and to be delivered on or before January 21, by 12 o'clock noon.

JANUARY 21.—**Cashel.**—CHURCH WORKS.—Works to be done to the Parish Church, Cashel, for the Very Rev. Dean Kinane, P.P., from the plans and specification prepared by Mr. Samuel F. Hynes, F.R.I.B.A., 21, South Mall, Cork. Plans, etc., to be seen at the Deanery, Cashel, and the offices, South Mall, Cork. Sealed and endorsed tenders sent to architect on or before January 21.

JANUARY 21.—**Port-Glasgow.**—SLAUGHTER-HOUSE ALTERATIONS.—The T.C. of Port-Glasgow invite offers for the work to be executed in the alteration of their slaughter-house in Queen-street, Port-Glasgow. Schedules of the mason, joiner, slater, tile and cement, plumber and gasfitting, and patent roof glazing works can be obtained from Mr. Andrew Paton, Town Clerk, Port-Glasgow. Sealed offers must be lodged with the Town Clerk not later than January 21, enclosed in a sealed envelope and marked on the outside the work offered for. A fee of 5s. will be charged for each schedule. The plans can be seen at the Burgh Surveyor's office, Port-Glasgow, and any information desired can be obtained from Messrs. A. F. Duncan & G. D. Copland, architects, 146, West Regent-street, Glasgow.

* JANUARY 22.—**West Ham.**—WALLS, ETC.—West Ham B.C. invite tenders for (1) construction of retaining wall, etc., at Prince Regent's-lane, Plaistow; (2) additional lavatory accommodation, cloak-rooms, and other sundry alterations, Town Hall, Stratford. Plans may be seen, and specifications, form of tender, etc., obtained, at the office of the Borough Engineer, Town Hall, Stratford, on and after January 10. Tenders, endorsed "Tender for (1) Retaining Wall, Prince Regent's-lane; (2) Alterations, Town Hall," to be sent to Town Clerk, Town Hall, West Ham, E., not later than 4 o'clock, January 22.

JANUARY 22.—**Withington.**—LATRINES, BATHHOUSES, LAVATORIES, ETC.—Chorlton Guardians invite tenders for the erection of latrines, bathhouses, lavatories,

etc., at the Withington Workhouse. Plans and sections may be seen, and quantities obtained, at the offices of Messrs. Charles Clegg & Son, architects, of 21, Spring-gardens, Manchester, upon payment of 1*l.* 1s. Sealed tenders, enclosed in the official envelope, to be delivered to Mr. David S. Bloomfield, Clerk to the Guardians, Union Offices, All Saints', Manchester, not later than 5 p.m. on January 22.

JANUARY 23.—**Selhurst.**—ENGINE-HOUSE.—The Metropolitan Water Board invite tenders for the construction of an engine and producer house, tower, etc., at Selhurst, County Borough of Croydon. Forms of tender, etc., may be obtained on application to the engineer, Southwark Bridge-road, S.E., on production of an official receipt for the sum of 5*l.*, which sum must first be deposited with the Comptroller at the Board's Central Offices, Savoy-court, Strand, W.C. Such payments and applications must be made between the hours of 10 a.m. and 4 p.m. (except on Thursdays and Saturdays). Tenders, enclosed in sealed envelopes, addressed to the "Clerk of the Board," Metropolitan Water Board, Savoy-court, Strand, W.C., and endorsed "Tender for Engine and Producer House, Selhurst," must be delivered at the offices of the Board not later than 10 a.m. on January 23.

JANUARY 23.—**Westerham.**—ENGINE AND BOILER HOUSE.—The Metropolitan Water Board invite tenders for the erection of an engine and boiler house and chimney shaft at the Hill Park Estate, Westerham, Kent. Forms of tender, etc., may be obtained on application to the engineer, Brookmill-road, Deptford, on production of an official receipt for the sum of 2*l.*, which sum must first be deposited with the Comptroller at the Board's Central Offices, Savoy-court, Strand, W.C. Such payments and applications must be made between the hours of 10 a.m. and 4 p.m. (except on Thursdays and Saturdays). Tenders, enclosed in sealed envelopes, addressed to the "Clerk of the Board," Metropolitan Water Board, Savoy-court, Strand, W.C., and endorsed "Tender for Engine and Boiler House, etc., Westerham," must be delivered at the offices of the Board not later than 10 a.m. on January 23.

✱ JANUARY 23.—**Worthing.**—FREE LIBRARY AND MUSEUM.—Worthing Corporation invite builders desirous of tendering for the erection of a free library and museum to send their names to the Town Clerk on or before 12 o'clock noon on January 23. Drawings may be seen at the Town Clerk's office, Worthing, on January 24, 25, and 26, and after at the architect's office, Mr. Henry A. Couch, A.R.I.B.A., 12, Gray's Inn-square, W.C.

JANUARY 25.—**Elgin.**—HOSPITAL.—The mason, carpenter, slater, plaster, plumber, painter, and glazier works, and laying out and enclosing grounds of joint smallpox, etc., hospital, to be erected near Elgin, for the County of Elgin, including Burghs. Plans and specifications may be seen with, and schedules of quantities obtained from, Mr. Charles C. Doig, architect, Elgin, with whom offers must be lodged on or before January 25.

JANUARY 25.—**Llandaff.**—SCHOOL BUILDINGS.—The Governors of Howell's Glamorgan County School invite tenders for the erection of a gymnasium, library, and other additions to their school buildings at Llandaff. Plans may be seen, and bills of quantities obtained, at the offices of Mr. G. E. Halliday, F.R.I.B.A., architect, 19, Castle-street, Cardiff. Sealed tenders are to be delivered to Mr. C. R. Waldron, Clerk, No. 17, Church-street, Cardiff, on or before January 25.

JANUARY 28.—**Bagshot.**—SCHOOL-ROOMS, ETC.—The Trustees of the Wesleyan Church, Bagshot, invite tenders for the erection of new school-rooms, vestries, etc., at Bagshot. Plans, etc., may be seen, and all information obtained, from the architect, Mr. W. J. Hodson, The Avenue, Camberley. Tenders, sealed and endorsed, must be sent to the Rev. S. H. Phillips, Epworth, Camberley, by noon on January 28.

JANUARY 28.—**Ipswich.**—SCHOOL ALTERATIONS.—Ipswich Education Committee invite tenders for the execution of certain alterations of the premises in Smart-street. The plans may be seen on application to the architect, Mr. E. T. Johns, of Tower-chambers, Tower-street, Ipswich, who will furnish any further particulars. Sealed tenders, plainly endorsed "Tender for Smart-street Alterations," must be delivered to Mr. J. Hepburn Hume, Secretary, Ipswich Education Offices, Tower House, Tower-street, Ipswich, between 10 a.m. and 12 noon on January 28.

JANUARY 28.—**New Brighton.**—SCHOOL.—Wallasey U.D.C. invite tenders for the whole of the works required in the erection of new school, in accordance with drawings and specification prepared by Mr. Edmund Kirby, F.R.I.B.A., 5, Cook-street, Liverpool. Copies of bills of quantities, etc., may be obtained from the architect's office, on receipt of a deposit of 1*l.* 1s. Sealed tenders, marked "Tender for New Brighton School," to reach Mr. H. W. Cook, Clerk and Solicitor, Public Offices, Egremont, Cheshire, by post, not later than noon of January 28.

JANUARY 31.—**Keighley.**—CHURCH.—For erection of the first section of All Saints' Church, Highfield, Keighley. Drawings may be seen, and quantities obtained, at the offices of Messrs. J. B. Bailey & Son, architects, 3, Scott-street, Keighley, from January 16 to 31.

✱ JANUARY 31.—**Worcester.**—EXTENSIONS.—The Corporation of Worcester invite tenders for the extension to the Victoria Institute, Worcester. The drawings and specification, prepared by Messrs. John W. Simpson & Maxwell Ayrton, of Gray's-inn, London, with the conditions of contract, may be seen, and copies of the bills of quantities and form of tender obtained, at the office of the quantity surveyor, Mr. A. G. Parker, 5, Foregate-street, Worcester, on payment of 2*l.* 2s. Tenders, marked "Victoria Institute Extension," to be delivered at Town Clerk's Office on or before January 31.

FEBRUARY 2.—**Bury.**—TRAMWAY DEPOT.—Bury Corporation invite tenders for the work required in the erection of the extension to the Central Tramway Depôt, situate in Rochdale-road, Bury. Drawings may be seen, and specification and bill of quantities obtained, upon application to Mr. Arthur W. Bradley, A.M.Inst.C.E., Borough Engineer and Surveyor. A deposit of 2*l.* will be required. Sealed tenders, endorsed "Central Tramway Depôt (Extension), Contract No. 4A," must be delivered to the Town Clerk, Bury, not later than February 2.

FEBRUARY 4.—**Langwith.**—HOSPITAL.—The North Derbyshire Hospital Committee invite tenders for the erection of an isolation hospital at Langwith, in the County of Derby. The drawings, etc., may be seen, and bills of quantities and form of tender obtained, at the offices of Messrs. Rollinson & Son, Corporation-street, Chesterfield, Architects to the Hospital Committee, on depositing the sum of 3*l.* Sealed tenders (in the envelopes provided) must be delivered at office of Mr. Jno. Middleton, law clerk, 24, Gluman-gate, Chesterfield, on or before 12 o'clock at noon on February 4.

✱ FEBRUARY 4.—**Near Clandon.**—HOSPITAL.—Builders wishing to tender for erection of smallpox hospital about two miles from Clandon Station, on the London and South-Western Railway, are invited to send their names to the Clerk to the Surrey Smallpox Hospital Committee, County Hall, Kingston-on-Thames, not later than January 22. Plans and specifications may be seen, and forms of tender obtained, from Messrs. Widnell & Trollope, 20, Tothill-street, S.W., or County Hall, Kingston-on-Thames, on and after January 19. Tenders to be delivered to the County Hall on or before noon, February 4.

NO DATE.—**Leeds.**—ALTERATIONS, ETC., TO PREMISES.—The whole or any of the following trades, viz.:—Mason and brickwork, joiner and carpenter, plumber, plasterer, painter, slater, and ironfounders' work required in the alterations and additions to premises, Park-place and St. Paul's-street, Leeds, for Messrs. Hollis & Webb. Names to Messrs. Thomas Ambler & Son, architects, 29, Cookridge-street, Leeds, when bills of quantities will be forwarded to them.

ENGINEERING, IRON, AND STEEL.

JANUARY 12.—**Hull.**—SLUICE VALVES, ETC.—Hull Corporation invite tenders for the supply of the following, viz.:—Contract No. 1.—100 4-in. and sixty 6-in. sluice valves. Contract No. 2.—Fifty sluice, valve hydrants and boxes, and fifty 3-in. special fullway screwdown hydrants. Specifications, etc., may be obtained from Mr. F. J. Bancroft, City Water and Gas Engineer, Town Hall, Hull, on payment of 10s. deposit in respect of each contract. Cheques and postal orders to be made payable to Mr. T. G. Milner, City Treasurer, Hull. Tenders, endorsed "Contract No. 1, Valves," and "Contract No. 2, Hydrants," are to be addressed to the Chairman of the Water and Gas Committee, and delivered at the Town Clerk's office on or before January 12.

JANUARY 12-25.—**Nelson.**—ELECTRIC LIGHTING.—Nelson Library Committee invite tenders for the supply and fixing of electroliers, wires, fittings, etc., for the electric lighting of the new Public Free Library in Carr-road, Nelson. Plans, etc., prepared by the architects, Messrs. Poyser & Savidge, of Queen's-chambers, King-street, Nottingham. Firms desiring to tender must send in their names to the architects before January 12. Tenders, endorsed "Electric Lighting," must be sent to Mr. J. H. Baldwick, Town Clerk, Town Hall, Nelson, not later than January 25.

JANUARY 14.—**Bridgwater.**—WATER PIPES.—Bridgwater R.D.C. invite tenders for about 150 tons of cast-iron pipes, 3 in. and 2 in. in diameter, and other castings, to be made in accordance with the specification of their Engineer, Mr. W. A. Collins, Binford-place, Bridgwater. A copy of the specification may be obtained from Mr. T. M. Reed, Solicitor and Clerk to the Council, Bridgwater, on and after January 1, and on payment of 1*l.* 1s. Sealed tenders, endorsed "Tender for Cast-iron Pipes," are to be delivered, by post or otherwise, at the R.D.C. Office in Bridgwater, at or before noon of January 14.

JANUARY 14.—**Pendleton, Salford.**—FOUNDATION WORK.—Salford Corporation invite tenders for excavating, concreting, etc., in connexion with proposed foundations, etc., for turbine generator at the electricity works, Frederick-road, Pendleton. Forms of tender, etc., may be obtained at the Borough Engineer's office, Town Hall, Salford, upon payment of 1*l.* 1s. Tenders, endorsed "Foundations, etc., for Turbine," addressed to the Chairman of the Electricity Committee, must be delivered to Mr. L. C. Evans, Town Clerk, Town Hall, Salford, not later than 4 p.m. on January 14.

JANUARY 15.—**Keighley.**—HEATING.—Keighley Guardians invite tenders for warming and hot-water supply installations at the Union Infirmary, Fell-lane, Keighley. Bills of quantities may be obtained on application to the architects, Messrs. Moore & Crabtree, York-chambers, Keighley. Sealed tenders, endorsed "Tender for Heating," to be delivered to Mr. Geo. E. Spencer, Clerk to the Guardians, North-street, Keighley, not later than 12 o'clock noon on January 15.

JANUARY 16.—**Leicester.**—CEMENT AND PIPES.—Leicester Highway and Sewerage Committee invite tenders for the supply of Portland cement and stoneware pipes during the year 1907. Forms of tender, etc., may be obtained on application at the office of the Borough Surveyor, Mr. E. George Mawbey, M.Inst.C.E., Town Hall, Leicester, on payment of a deposit of 10s. Tenders must be delivered on or before January 16.

JANUARY 18.—**Ashford, Middlesex.**—LAUNDRY MACHINERY.—The Managers of West London District Schools, Ashford, Middlesex, invite tenders for the provision of laundry machinery and fittings, comprising washing and drying machines, Decoudun ironer, hydro extractors, motors, switches, etc., according to a specification prepared by Mr. P. S. Liddell, of 63, Queen Victoria-street, E.C., for a new laundry building about to be erected. Copies of the specification, etc., will be forwarded on written application to Mr. F. G. Beeching, Clerk to the Managers, Ashford, Middlesex, accompanied by a deposit of a 5*l.* Bank of England note. The tenders must be delivered to the Clerk, as per instructions with the forms, not later than 11 a.m. on January 18.

JANUARY 18.—**Hull.**—BRIDGE WORKS.—Hull Corporation invite tenders for providing and fixing steel and ironwork for strengthening North movable bridge, providing and fixing new end-plates, and other work. The approximate weight of new steel and ironwork is 18 tons. Forms of tender, etc., may be obtained at the City Engineer's office. Tenders, endorsed as directed on the forms of tender, are to be addressed to the Chairman of the Bridges Committee, and delivered at the Town Clerk's office before 10 a.m. on January 18.

JANUARY 19.—**Ferryhill, etc.**—BRIDGE WORKS.—Tenders are invited (*a*) for widening Merrington-lane bridge, Ferryhill; (*b*) for reconstructing Raby Beck bridge, Staindrop; and (*c*) for reconstructing culvert at Lanchester Police-station. Plans, etc., may be seen, and bills of quantities obtained, at the County Engineer's office, Shire Hall, Durham. Sealed tenders, properly endorsed, to be delivered to Mr. William Crozier, A.M.Inst.C.E., County Engineer, on or before January 19.

JANUARY 21.—**Henfield.**—WATER SUPPLY.—Steyning West R.D.C. invite tenders for the supply, delivery, and laying of a 4-in. cast-iron water main about 2500 yds. long for Henfield water supply. Specification and form of tender may be obtained, and the drawings seen, on application to Mr. Fredk. Slaughter, High-street, Steyning, Engineer to the work. Sealed tenders are to be delivered at the office of Mr. E. Cripps, Solicitor, Union Offices, Ham-road, New Shoreham, on or before January 21, endorsed "Tender for Water Main."

JANUARY 21.—**Whalley.**—BRANCH RAILWAY.—The Lancashire Asylums Board invite tenders for the formation of a branch railway, about 44 chains long, from the main Lancashire and Yorkshire line near Whalley Station to the site for the proposed new asylum; the erection of an under-bridge, and the construction of a deep subsoil drain. Plans, etc., may be seen, and bills of quantities may be obtained, at the office of the architect, Mr. Henry Littler, 16, Ribblesdale-place, Preston, upon the payment of a deposit of 2*l.* Tender forms may be obtained from the architect, and a tender must be delivered before 12 o'clock noon on January 21, sealed and endorsed, to Mr. Harcourt E. Clare, County Offices, Preston.

JANUARY 22.—**Plymouth.**—BOILERS.—Two Cornish steam boilers to be provided and fixed at the Plymouth Workhouse for the Incorporation of Guardians of the Poor of Plymouth. Particulars on application to Messrs. Thornely & Rooke, architects, 11, The Crescent, Plymouth. Tenders, endorsed "Tender for Two Steam Boilers," must be sent in, addressed to Mr. Wm. Adams, Clerk to the Guardians, 13, Princess-square, Plymouth, not later than 12 o'clock noon on January 22.

JANUARY 22.—**Wimbledon.**—ROLLER DOOR.—Wimbledon Corporation invite tenders for the supply and erection of a steel roller door at the Council's Electricity Works, Durnsford-road, Wimbledon. A drawing giving particulars of the door may be seen at the Electricity Works. Sealed tenders, endorsed "Tender for Roller Door," must be delivered at the Borough Electrical Engineer's office not later than 12 noon on January 22.

JANUARY 23.—**Crystal Palace.**—WATER-TANK ALTERATIONS.—The Metropolitan Water Board invite tenders for the execution of certain work to a water tank at the Crystal Palace, in the Urban Districts of Penge and Beckenham. Forms of tender, etc., may be obtained on application to the Engineer, Southwark Bridge-road, S.E., on production of an official receipt for the sum of 2*l.*, which sum must first be deposited with the Comptroller at the Board's Central Offices, Savoy-court, Strand, W.C. Such payments and applications must be made between the hours of 10 a.m. and 4 p.m. (except on Thursdays and Saturdays. Tenders, endorsed in sealed envelopes, addressed to the "Clerk of the Board," Metropolitan Water Board, Savoy-court, Strand, W.C., and endorsed "Tender for Crystal Palace Tank," must be delivered at the offices of the Board not later than 10 a.m. on January 23.

JANUARY 23.—**London.**—ELECTRIC CAPSTAN.—Islington B.C. invite tenders for the supply of an electrically-driven capstan for hauling coal trucks. Form of tender and specification may be obtained on application to the Electrical Engineer, 50, Edengrove, Holloway, London, N. Sealed tenders, endorsed "Tender for Electric Capstan," and addressed to Mr. Wm. F. Dewey, Town Clerk, Town Hall, Upper-street, Islington, N., must be delivered at the Town Hall not later than 12 noon on January 23.

JANUARY 29.—**Portsmouth.**—SEWAGE-LIFTING STATION, ETC.—Portsmouth Corporation invite tenders for the construction of sewage-lifting station complete, with air-compressing and sewage-lifting plant, and including a short length of sewer, a cast-iron rising main, and all accessories, at Baffins Marsh. On payment of the sum of 5*l.* a lithographed copy of the specification, etc., can be obtained on application to Mr. Alexander Hellard, Town Clerk, Town Hall, Portsmouth, and any further particulars can be obtained at the Borough Engineer's offices, at the Town Hall, Portsmouth. Tenders, marked "Tender for Sewage-lifting Station and other Works, Baffins Marsh, Copnor," must be sent to the Town Clerk not later than 10 a.m. on January 29.

JANUARY 31.—**Seaton.**—WATERWORKS.—Seaton U.D.C. invite tenders for the construction of a covered service reservoir and meter chamber at Couchill, and the supply, delivery, laying, and jointing of about two miles 1,200 yds. of 6-in., 4-in., and 3-in. cast-iron socket pipes, with appendages, including all necessary sluice and air valves, hydrants, and other works for the water supply of the town of Seaton. Drawings, specification, and conditions may be seen at the offices of the engineers, Messrs. Beesley, Son, & Nichols, MM.Inst.C.E., of 11, Victoria-street, Westminster, S.W., where also specifications, bills of quantities, and forms of tender may be obtained on deposit of 5*l.* Sealed tenders, addressed to Mr. A. P. Cann Evans, Clerk to the Seaton U.D.C., Town Hall, Seaton, Devon, and endorsed "Seaton Waterworks," are to be delivered before 10 a.m. on January 31.

FEBRUARY 13.—**Salford.**—AIR-BLOWING PIPES.—Salford Corporation invite tenders for cast-iron air-blowing pipes for the sewage works. The drawings, specified quantities, and forms of tender, may be obtained at the Borough Engineer's office, Town Hall, Salford. Tenders, endorsed "Air-blowing Pipes," addressed to the Chairman of the Rivers Committee, must be delivered to Mr. L. C. Evans, Town Clerk. Town Hall, Salford, not later than 12 noon on February 13.

✱ FEBRUARY 13.—**Wembley.**—TRAMWAY.—The Light Railways' and Tramways' Committee of the Middlesex C.C. invite tenders for about 1 mile 2 furlongs

5 chains of double track (with road widenings) for electric traction along the Harrow-road, in the Parish of Wembley. Plans, specifications of works, and conditions of contract may be seen, and forms of tender, with bills of quantities, obtained, of Mr. H. T. Wakelam, County Engineer, Middlesex Guildhall, Westminster, S.W., on and after January 21, on deposit of 5*l.* 5s. Tenders, sealed and endorsed "Harrow-road Tramway," must be delivered in sealed envelopes at the offices of Sir Richard Nicholson, Middlesex Guildhall, Westminster, S.W., before 12 noon, February 13.

✱ FEBRUARY 13.—**Willesden.**—TRAMWAYS, ETC.—The Light Railways' and Tramways' Committee of the Middlesex C.C. invite tenders for about 2 miles 1 furlong 6 chains of double track (including the demolition of the existing bridge and the erection of a new steel girder bridge across the L. and N.W. main line at Willesden Junction) for electric traction along Old Oak-lane, Victoria-road, Horn-lane, E.C., in the Parishes of Willesden and Acton. Plans, specifications of works, and conditions of contract may be seen, and forms of tender, with bills of quantities, obtained, of Mr. H. T. Wakelam, County Engineer, Middlesex Guildhall, Westminster, S.W., on and after January 21, on deposit of 10*l.* Tenders, sealed and endorsed "Old Oak-lane Tramway," must be delivered in sealed envelopes at the offices of Sir Richard Nicholson, Middlesex Guildhall, S.W., before 12 noon, February 13.

NO DATE.—**Accrington.**—SINKING BOREHOLES.—Accrington District Gas and Water Board invite tenders for the sinking of two boreholes, 48 in. in diameter, and about 150 ft. deep, and other works at their Altham Bridge pumping-station, near Simonstone railway station (L. and Y.). Firms desiring to tender are requested to apply at once to the General Manager, Board's Offices, Accrington.

NO DATE.—**Keighley.**—FOUNDRY, PLATFORM, ETC.—The work required in new foundry platform, and roof to yard, erecting shop and foundry, at Worth Valley Tool Works, Keighley, for Messrs. Dean, Smith, & Grace, Ltd. Drawings may be seen, and bills of quantities obtained, at offices of Messrs. Moore & Crabtree, architects, York-chambers, Keighley.

NO DATE.—**Zetland.**—DEEPENING SEA CHANNEL.—The Mainland District Committee of Zetland C.C. invite tenders for deepening and otherwise improving the sea channel between the East and West Isles of Burra, according to plans and specifications prepared by Mr. G. Woulfe Brenan, C.E. Sealed tenders are to be lodged with Mr. A. Sutherland, District Clerk, Lerwick, by a date to be afterwards advertised.

MISCELLANEOUS.

JANUARY 15.—**London.**—ROPES.—Bombay, Baroda, and Central India Railway Directors invite, up to noon on January 15, tenders for the supply of Manilla lashing ropes. Tenders must be made on forms, copies of which, with specifications, can be obtained at offices of Mr. W. V. Constable, Secretary, Gloucester House, 2, 3, and 4, Bishopsgate-street Without, London, E.C., on payment of 10s. 6d. (which will not be returned).

JANUARY 16.—**London.**—HOUSE REFUSE.—Stoke Newington B.C. invites tenders for the collection of house refuse and delivery thereof at the Council's destructor works within the Borough. For particulars and forms of tender apply to Surveyor, Town Hall, Milton-road, Stoke Newington. Sealed and endorsed tenders to be delivered by 4 o'clock on January 16 to Mr. George Webb, Town Clerk, Town Hall, Stoke Newington.

JANUARY 16.—**Manchester.**—TERRA-COTTA.—Manchester Education Committee invite tenders for the supply of terra-cotta for the Grand-street Special Municipal school, Bradford, and the Devonshire-street Municipal school, All Saints', Manchester. Plans may be seen, and a copy of the bill of quantities (including specification) may be obtained, at the offices in Deansgate, Manchester, on a deposit of 1*l.* 1s. in each case. Tenders, on the forms and in the envelopes provided, must be delivered at the Deansgate offices of the Education Committee not later than January 16. Cheques to be made payable to the Accountant, Education Offices, Deansgate.

JANUARY 19.—**Elgin.**—CARTING.—Carting contract for year 1907-1908. Specifications may be seen and schedules obtained at the Burgh Surveyor's office. Offers are to be lodged with the Town Clerk on or before January 19.

JANUARY 22.—**Ilford.**—PULLING DOWN, ETC.—Ilford U.D.C. invite tenders for pulling down Nos. 52 and 54, High-road, Broadway, Ilford, and clearing the site of material and rubbish, such material and rubbish to become the property of the contractor. Plan of the buildings to be pulled down may be seen, and form of tender obtained, on payment of a deposit of 2*l.* 2s., on application to Mr. H. Shaw, M.Inst.C.E., Engineer and Surveyor to the Council, at the Town Hall, Ilford. Sealed tenders, endorsed "Tender for Broadway Premises," must be sent to Mr. John W. Benton, Clerk, Town Hall, Ilford, on or before 12 o'clock noon on January 22.

✱ JANUARY 22.—**Kensington.**—HORSES, CARTS, ETC.—The Commissioners of His Majesty's Works, etc., are prepared to receive tenders for supply of horses, carts, etc., for use in (*a*) St. James's, the Green and Hyde Parks, and in Kensington Gardens; (*b*) Regent's Park, during one year from April 1 next. Particulars as to conditions of contract may be obtained for (*a*) from Mr. C. Jordan, the Store-yard, Hyde Park, W.: (*b*) from Mr. A. D. Webster, Superintendent's Lodge, Regent's Park. Tenders may be sent for (*a*) or (*b*) or both, and be addressed to the Secretary, H.M. Office of Works, Storey's-gate, S.W., endorsed "Tender for Horses, Carts, etc., Royal Parks," before 12 o'clock noon on January 22.

JANUARY 23.—**London.**—TELEPHONES AND BELLS.—The Metropolitan Asylums Board invite tenders for the installation of telephones and electric bells at the North-Eastern Fever Hospital, St. Ann's-road, Tottenham, N., in accordance with drawing and specification prepared by Mr. W. T. Hatch, M.Inst.C.E., M.I.Mech.E., Engineer-in-Chief. Drawing, etc., may be inspected at the office of the Board, Embankment, London, E.C., and can then be obtained upon payment of a deposit of 1*l.* Tenders, addressed as noted on the form, must be delivered at the office of the Board not later than 10 a.m. on January 23.

JANUARY 24.—**Audlem, Nantwich.**—SCAVENGING.—The R.D.C. invite tenders for emptying pails containing nightsoil, and convey the same away every week, and to empty ashpits, at the premises where such pails are used, once every three months, and also to properly empty privies and ashpits and convey the contents away four times every year from premises in the township of Audlem. Further particulars may be obtained from the Council's Inspector, Mr. John Storey, at his office in Pillory-street, Nantwich. Tenders to be sent in to Mr. C. E. Speakman, Clerk to the Council, Union Offices, Nantwich, not later than January 24.

JANUARY 26.—**Hove.**—REMOVAL OF HOUSE REFUSE.—Hove Corporation invite tenders from persons willing to collect the house refuse from all houses and buildings within the borough. Carts or vans will be provided by the Council; also the disinfectant to be used for disinfecting the dustbins. The tenders to be for either two or three years from March 26 next. Further particulars may be obtained, and a copy of the contract to be entered into seen, at the Town Clerk's Office, Town Hall, Hove. Tenders, on forms supplied, addressed to Mr. H. Endacott, Town Clerk, Town Hall, Hove, and endorsed "Tender for Removal of House Refuse," will be received up to 6 o'clock on January 26.

JANUARY 28.—**Cheshunt.**—CARTAGE.—Cheshunt U.D.C. invite tenders for supplying the following materials, etc., and for cartage work for one year ending March 31, 1908:—(1) Portland cement; (2) grey ground lime; (3) blue lias lime; (4) stoneware pipes, gullies, etc.; (5) Guernsey granite; (6) Kentish flints; (7) local gravel, sand, and hoggin; (8) steam coal and coke; (9) forage; (10) ironmongery, tools, brooms, etc.; (11) team labour and cartage work; (12) oils and sundries. Particulars and forms of tender may be obtained on application at office of Mr. Reginald H. Jeffes, A.M.Inst.C.E., engineer and surveyor, Manor House, Cheshunt, during office hours, or will be forwarded on receipt of stamped addressed envelope. Tenders to be delivered in sealed envelopes, endorsed "Tender for ——," as the case may be, addressed Chairman of Council, Manor House, Cheshunt, on or before 5 p.m., January 28. A deposit of 3*l.* 3s. will be required in the case of Guernsey granite and of 1*l.* 1s. in the case of flints and coal.

PAINTING, etc.

JANUARY 14.—**Glasgow.**—PAINTING, ETC.—Glasgow Corporation invite offers for (1) painter work and (2) electric wiring and fittings required in connexion with the buildings presently being erected at head of Hope-street. Specifications and forms of offer may be had on application at the office of Public Works, City Chambers, 64, Cochrane-street. Sealed offers, marked outside "Offer for ——, Hope-street," must be lodged with Mr. A. W. Myles, Town Clerk, City Chambers, Glasgow, on or before January 14.

JANUARY 14.—**Leith.**—PAINTING.—Leith P.C. invite tenders for the execution of painting work in connexion with the new poorhouse at Leith. Application to be made to Mr. James Miles, Clerk, 45, Charlotte-street, Leith, on or before January 14, with a deposit of 2*l.* 2s.

FEBRUARY 4.—**Liverpool, Aintree, etc.**—PAINTING.—The Directors of the Lancashire and Yorkshire Railway invite tenders for painting at the undermentioned places:—(1) From Leeds-street Bridge, Liverpool, to Kirkdale Tunnel, including Great Howard-street and South Docks Goods Station. (2) From Aintree to Ormskirk and on the Skelmersdale Branch. (3) Southport Passenger Station and from Southport to Eastbank-street Bridge and St. Luke's. (4) From Hawkshead and Roe-lane Junction, Southport, to Hillhouse Junction. (5) From Daisyfield Junction, Blackburn, to Padiham Junction (*viâ* Accrington). (6) Bolton to Blackburn and the Astley Bridge and Hoddlesden Branches. (7) Hunt's Bank and Passenger Superintendent's Office (outside only). Portions of Victoria Station, that is, buildings on platforms Nos. 12 to 17; also buildings at the east end of No. 11 platform and the Fish Dock; also from Cheetham Hill Road Bridge to Rochdale-road on the main line and to Thorpe's Bridge on the loop line. (8) Halifax Passenger Station and from Halifax to Holmfield. (9) Bailiff Bridge and Cliftonroad Branch. (10) From Horbury Junction to Barnsley and on the Silkstone Branch. (11) From Headlam's Bridge, Knottingley, to and inclusive of the Goods Station and Docks at Goole. Specifications and separate forms of tender may be obtained on personal application at the Engineer's Office, Hunt's Bank, Manchester. Tenders, endorsed "Tender for Painting," to be in the hands of Mr. R. C. Irwin, Secretary, Hunt's Bank, Manchester, not later than 10 o'clock on the morning of February 4.

NO DATE.—**Carlisle.**—PAINTING.—Sundry painting works at the Crown Courts, Carlisle. Information on application at office of Mr. Geo. Dale Oliver, F.R.I.B.A., County Architect, Carlisle.

ROADS, SANITARY, AND WATER WORKS.

JANUARY 14.—**Hanwell.**—ROAD WORKS.—Hanwell U.D.C. invite tenders for sewering, levelling, paving, metalling, flagging, channelling, providing means of lighting, and making-up of Balfour-avenue. The plan, sections, etc., may be seen, and bills of estimated quantities and forms of tender obtained, on payment of 1*l.* 1s. (cheques will not be accepted), on application to the Surveyor, Mr. Sidney W. Barnes, Assoc.M.Inst.C.E., at the Council's Offices. Sealed tenders, in envelopes supplied, to Mr. P. J. Dennis, Clerk to the Council, U.D.C. Offices, Cherington-road, Hanwell, W., not later than January 14.

JANUARY 14.—**Skircoat, Halifax.**—FILTERING AND SEWER WORKS, ETC.—Halifax Highways Committee invite tenders for (1) the carting and laying in position of about 21,000 cubic yds. of filtering medium for the bacteria beds at Skircoat; (2) the construction of about 2,850 stoneware pipe sewers in Washer-lane, through Pye Nest Fields, and in Rochdale-road; (3) the execution of private improvement works in Back Blackwood-grove and two adjoining cross streets, and a portion of Laurel-street and two adjoining back streets. Plans, specifications, and particulars may be seen, and forms of tender obtained, on application to Mr. James Lord, M.Inst.C.E., Borough Engineer, Town Hall, Halifax, upon payment of the sum of 1*l.* for each set of quantities. Tenders, properly endorsed, must be sent to Mr. Keighley Walton, Town Clerk, on or before January 14.

JANUARY 15.—**Tottenham.**—MAKING-UP ROAD.—Tottenham U.D.C. invite tenders for making-up Stirling-road. The plans can be seen, and general conditions, etc., obtained, on application to Mr. W. H. Prescott, A.M.Inst.C.E., Engineer to the Council, at their Offices, Council-buildings, The Green, Tottenham. The sum of 10s. 6d. will be charged for the quantities. Persons tendering will be required to deposit with the Clerk, when handing in their tenders in, a Bank of England note, or cash, the sum of 5*l.* Sealed tenders, on the form supplied, endorsed "Tender for Stirling-road," to be delivered to Mr. Edward Crowne, Clerk of the Council, Tottenham, by 12 o'clock noon on January 15.

JANUARY 16.—**Bournemouth.**—MAKING-UP.—The Corporation invite tenders for making-up (No. 1) Markham-road; (No. 2) Bemister-road. Full particulars, forms of tenders, specifications, and schedules can be obtained of the Borough Engineer, Mr. F. W. Lacey, at whose office drawings can be seen, provided that the sum of 1*l.* 1s. has been previously deposited in respect of each tender with Mr. F. W. Lacey, M.Inst.C.E., Borough Engineer and Surveyor, Municipal Offices, Bournemouth. Tenders to be sent in, in envelopes furnished for the purpose, to the Town Clerk (Mr. Geo. Wm. Bailey), before 11 a.m. of January 16.

JANUARY 17.—**Birmingham.**—ROAD WORKS.—The Public Works Committee invite tenders for the construction of private street works, including road and sewer construction, in Mount-street, Eliot-street, and Court 51, Summer-lane. The drawings and specifications may be inspected, and quantities and forms of tender obtained, on deposit of 1*l.* at the office of Mr. Henry E. Stilgoe, M.Inst.C.E., City Engineer and Surveyor, Council House, Birmingham, where separate tenders for each road are to be sent on or before January 17, endorsed "Tender for Private Street Works."

JANUARY 17.—**Manchester.**—ROAD WORKS.—Manchester Sanitary Committee invite tenders for the kerbing, channelling, etc., of the new roads on the Blackley Estate. Drawing may be seen, and specification, etc., obtained, on application at the City Surveyor's Office, Town Hall, Manchester, on payment to the City Treasurer of 1*l.* 1s. All cheques and postal orders are to be made payable to the order of "The Corporation of Manchester." Tenders, enclosed in the official envelope, and addressed to the Chairman of the Sanitary Committee, to be delivered at the City Surveyor's office, not later than 10 a.m. on January 17.

JANUARY 18.—**Levenshulme.**—PRIVATE STREET WORKS.—Levenshulme U.D.C. invite tenders for sewering, draining, paving, curbing, flagging, channelling, and completing the following streets and passages in the Council's district:—Goulden-road, Guildford-road, Rushden-road, Kettering-road, and Printworks-lane; passages rear of (1) Goulden-road and Nico Brook; (2) Goulden and Guildford roads. (3) Guildford and Rushden roads; (4) Rushden and Kettering roads; (5) Kettering and Manor roads. Specifications and bills of quantities, and further particulars, may be obtained from the Council's Surveyor, Mr. James Jepson, Guardian-chambers, Tiviot Dale, Stockport, on payment of 2*l.* 2s. Tenders, endorsed "Tender for Private Street Works," to be sealed and delivered to Mr. J. Ogden Hardicker, Clerk, Northern Assurance-buildings, Albert-square, Manchester, on or before January 18.

JANUARY 21.—**Cosby.**—ROAD WORKS.—Blaby R.D.C. invite tenders for the levelling, metalling, paving, channelling, and other works required in the making-up of Portland-street, in the Parish of Cosby. The street is 350 yds. in length. Plans and specifications can be seen, and copy of quantities obtained, on application to the Council's Surveyor, Mr. J. Turner, Blaby-road, South Wigston, and the deposit of a cheque for 1*l.* Sealed tenders, upon the forms supplied, endorsed "Tender for Portland-street," must be sent to Mr. B. A. Shires, Clerk to the Council, 1, Friar-lane, Leicester, on or before January 21.

✱ JANUARY 21.—**Herne Hill.**—PAVING WORKS.—The B.C. of Camberwell invite tenders for repaving the surface of the roadway of Half Moon-lane from Herne Hill to Dulwich Village, either with compressed asphalt or with patent or other kind of shallow wood blocks. Specification and form of tender can be obtained from Mr. Wm. Oxtoby, Borough Engineer, Town Hall, Peckham-road, S.E., and tenders must be delivered on or before 6.30 p.m., January 21.

JANUARY 21.—**Winchmore Hill.**—STREET IMPROVEMENTS.—Southgate U.D.C. invite tenders for the making-up of the eastern portion of Green Dragon-lane, Winchmore Hill. Plans may be seen on application to the Council's Surveyor, Mr. C. G. Lawson, from whom copies of the specification and forms of tender may be obtained on depositing 2*l.* Tenders, endorsed "Public Street Improvements," must reach Mr. W. M. Ellenor, Clerk of the Council, Council Offices, Palmer's Green, N., not later than 12 o'clock noon on January 21.

JANUARY 23.—**Caterham.**—MAIN DRAINAGE.—The U.D.C. of Caterham invite tenders for the construction of the following works:—About 10½ miles of stoneware and iron sewers, ranging from 8 in. to 18 in. in diameter, with the necessary manholes, flushing-tanks, and other appurtenances; purification works, consisting of settling tanks, contact beds, streaming beds, sand filters, and other works. The whole of the said works to be carried out in accordance with the plans and specification prepared by Messrs. John Taylor, Sons, & Santo Crimp, civil engineers. Specification, etc., at the offices of the engineers, Caxton House, Westminster, upon payment of 5*l.* (cheque only). Tenders, endorsed "Caterham Drainage, Contract No. 1," must be delivered in a sealed package, addressed to Mr. F. B. Winter, Clerk, at the U.D.C. Offices, Caterham Valley, before 4 p.m. on January 23.

✱ JANUARY 23.—**Hammersmith.**—SEWERS.—The

Hammersmith B.C. invites tenders for certain works of sewer construction, about 174 lin. yds. of 18-in. pipe, with manholes, etc., in Mardale-street, Hammersmith. Plans may be seen, and copy of specification, with bill of quantities and form of tender are obtainable on application to Mr. H. Mair, M.Inst.C.E., Borough Surveyor. Sealed tenders, endorsed "Tender for Sewer Works," to be delivered to the Town Clerk, Town Hall, Hammersmith, not later than 6 p.m., January 23.

JANUARY 24.—**Romford.**—PRIVATE STREET WORKS.—The Romford U.D.C. invite tenders for the work of making-up Catherine, Margaret, and Hamilton roads, within the Urban District of Romford. The plans may be seen, and specifications, etc., obtained, on application to Mr. Hubert T. Ridge, at the Council Offices, Market-place, Romford, on deposit of 5*l*. Sealed tenders, endorsed "Private Street Works," must be delivered at office of Mr. Charles T. King, Clerk, Council Offices, Romford, not later than 4 o'clock on January 24.

FEBRUARY 2.—**Amesbury.**—SEWERAGE WORKS.—Amesbury R.D.C. invite tenders for the construction of sewerage and sewage-disposal works at Amesbury, Wilts, consisting of about 350 yds. lin. of 8-in. cast-iron pipe sewers, 2,273 yds. of 8-in., 7-in., and 6-in. stoneware sewers, with the necessary manholes, etc., engine-house, receiving tank, 5-in. cast-iron rising main, scum tank, etc. The plans, etc., can be inspected at the office of the Council's Engineer, Mr. W. H. Stanley, A.M.Inst.C.E., Market House-chambers, Trowbridge, Wilts, of whom copies of the bill of quantities can be obtained on depositing the sum of 3*l*. 3s. Sealed tenders, endorsed "Amesbury Sewerage," to be delivered or sent to Mr. R. A. Wilson, Clerk, 12, Bridge-street, Salisbury, not later than February 2.

STONE, MATERIALS, AND STORES.

JANUARY 15.—**Lancaster.**—STORES.—Lancaster Corporation invite tenders for the supply of the following for the twelve months commencing February 1, 1907:—Fireclay pipes; grit setts; road materials; setts, flags, and curbs (Haslingden or Freestone). Forms of tender and further particulars may be obtained on application at the office of Mr. Jno. C. Mount, Borough Surveyor, Lancaster. Sealed and endorsed tenders to be sent to Mr. T. Cann Hughes, Town Clerk, Town Hall, Lancaster, on or before January 15.

JANUARY 17.—**Lambeth.**—TAR-PAVING.—Lambeth B.C. invite tenders for the supply of Kentish ragstone, tar-paving, topping and bottoming, for the twelve months ending March 31, 1908. Specifications and forms of tender may be obtained from Mr. Henry Edwards, C.E., Borough Engineer, 346, Kennington-road, S.E. Sealed tenders, endorsed "Tender for Tar-paving," are to be delivered to Mr. H. J. Smith, Town Clerk, Lambeth Town Hall, Kennington Green, S.E., not later than 12 o'clock noon on January 17.

JANUARY 21.—**Pontypridd.**—STORES.—Pontypridd U.D.C. invite tenders for the undermentioned contracts for the ensuing six months:—Contract No. 2, granite or basalt metalling; contract No. 3, broken limestone and gravel; contract No. 4, iron castings; contract No. 5, paving, kerb, and channelling; contract No. 6, cement and lime; contract No. 7, slates, bricks, etc.; contract No. 8, sewer pipes, etc.; contract No. 9, smith and cart work; contract No. 13, oils, paints, etc.; contract No. 14, engineers' stores; contract No. 15, bass brooms, etc.; contract No. 16, ironmongery. Forms of tender and specifications may be obtained on application at the office of Mr. P. R. A. Willoughby, A.M.Inst.C.E., Engineer and Surveyor to the Council. Sealed tenders, endorsed "Contract No. ——," must be received by Mr. J. Colenso Jones, Clerk to the Council, Municipal-buildings, Pontypridd, on or before January 21.

JANUARY 22.—**Bermondsey.**—STORES.—Bermondsey B.C. invite tenders for the supply of the undermentioned articles for one year, from March 31, 1907:—Asphalt, (S) ballast hoggin and sand, barging slop, refuse, etc., (X) brushes and combs, (S) bricks, (X) broken Guernsey granite, disinfectants, (S) drain pipes, (X) dust pails, (X) flints, (X) granite, kerb, and tram, (S) granite pitchings, (S) hardwood paving-blocks, (X) ironmongery, lime, (X) oilman's sundries, paints and oils, Portland cement, (S) scavengers' brooms, etc., (X) sewer boots, (X) sewers ironwork, shoeing horses, timber, tyres, (X) York paving. Samples must be sent with the above marked (S), and samples of those marked (X) can be seen at the Council's Offices, Town Hall, Spa-road, S.E. Forms of tender and other particulars can be obtained on application to Mr. Fredk. Ryall, Town Clerk, Town Hall, Spa-road. Tenders, addressed to the Town Clerk, and endorsed "Tenders for ——" (as the case may be), must be delivered to the Clerk not later than 4 p.m. on January 22.

✱ JANUARY 22.—**Little Ilford.**—MATERIALS AND LABOUR.—The Burial Board for the City of London invite tenders for supply of materials and labour at the City of London Cemetery, Little Ilford, for a period of one, two, or three years. Forms of tender and full information is obtainable from the City Engineer's Office, Guildhall, or of the Superintendent of the Cemetery, Little Ilford. Tenders, addressed to the Clerk of the Burial Board, and endorsed "Tender for Work at Cemetery," to be delivered at the Hallkeeper's Office, Guildhall, before 2 o'clock, January 22.

JANUARY 23.—**Bury.**—PIPES.—Bury Sewage Committee invite tenders for the supply and delivery of 630 lin. yds. of earthenware or stoneware special jointed pipes, 9 in. diameter. Specification and form of tender may be had on application to Mr. Arthur W. Bradley, A.M.Inst.C.E., Borough Engineer and Surveyor. Sealed tenders, endorsed "Special Jointed Pipes," to be delivered to the Town Clerk, Bury, not later than January 23.

JANUARY 23.—**Plymouth.**—STORES.—For the supply of the following goods and materials for one year, from April 1, 1907:—(1) Cement, bricks, and pipes; (2) ironmongery; (3) paints and linseed oil; (5) ironwork; (6) plumbers' work; (7) petroleum oil and motor spirit; (8) broomheads; (10) rope; (11) iron, steel, bolts, and nuts; (13) timber; (14) carbolic powder and sanitary fluid; (15) Portland cement; (16) lubricating oils; (17) tar and pitch; (18) painters' brushes; (20) wheelwrights' work; (21) street cleansing and street watering; (23) wood blocks; (24) creosote; "E" granite kerbs, etc.; "F" road metal; "M" refilling machine revolving brooms. Tenders must be based on the whole of a schedule (with the exception of schedules 13 and "E"), and not on any particular item contained therein. Schedules may be obtained on payment of a deposit of 1*l*. in cash for each schedule (cheques will not be received). Tenders to be delivered not later than January 23, addressed to Mr. James Paton, Borough Engineer and Surveyor, Municipal Offices, Plymouth.

JANUARY 24.—**Chipping Norton.**—GRANITE.—The R.D.C. invite tenders for the supply of granite for the year ending March 31, 1908. Specification and form of tender may be obtained at office of Mr. R. Entwistle, District Surveyor, Charlbury, Oxon, on receipt of stamped addressed envelope. Tenders must be delivered not later than January 24.

JANUARY 25.—**Spilsby.**—GRANITE AND SLAG.—Spilsby R.D.C. invite tenders for the supply of about 5,500 tons of broken granite, 8,000 tons of broken slag, and about 400 tons of slag chippings, to be delivered in such quantities and at such times as the Council shall require and direct. Specifications, etc., may be obtained on application to Mr. Thos. A. Busbridge, C.E., District Surveyor of Highways, Spilsby, to whom a small sample box of stone must be sent. Tenders, endorsed on the cover "Tender for Road Material," must be delivered at office of Mr. G. Beaumont Walker, Clerk, Spilsby, not later than January 25.

JANUARY 26.—**Norwich.**—GRANITE AND SLAG.—Norfolk C.C. invite tenders for the supply of granite and slag for the year ending March 31, 1908. Specification and form of tender may be obtained at office of Mr. T. H. B. Heslop, M.Inst.C.E., County Surveyor, Norwich, upon receipt of a stamped addressed envelope. Tenders, which can only be received on the forms provided, to be endorsed "Tender for Granite" or "Tender for Slag," as the case may be, to be sent in to the Clerk to the Council, the Shire House, Norwich, on or before January 26.

JANUARY 30.—**Devonport.**—STORES.—Devonport Corporation invite tenders for the supply of the following stores and materials until December 31, 1907:—(1) Masons', plasterers', and slaters' materials; (2) carpenters' materials, labour, etc.; (3) smiths' materials, labour, etc.; (4) painters' and glaziers' materials, labour, etc.; (5) plumbers' and gasfitters' materials, labour, etc.; (6) ironmongery; (7) coal and wood; (8) sand; (9) brooms. Forms of tender may be obtained at the Borough Surveyor's Office, Devonport. Sealed tenders, endorsed "Tender for ——," must be delivered to Mr. R. J. Fittail, Town Clerk, Municipal Offices, Devonport, on or before 12 noon on January 30.

JANUARY 31.—**Hatfield.**—GRANITE AND SLAG.—Hertfordshire C.C. invite tenders for the supply of broken granite and slag required for the main roads during the year ending March 31, 1908. Forms of tender and conditions of contract may be obtained on application at office of Mr. Urban A. Smith, M.Inst.C.E., County Surveyor, Hatfield, or will be sent through the post upon receipt of a stamped addressed foolscap envelope. Tenders, which must be upon the forms provided, are to be delivered not later than January 31.

FEBRUARY 18.—**Stoke-upon-Trent.**—STORES.—The Corporation invite tenders for the supply of materials and goods for the year ending March 31, 1908, as under:—Macadam and chippings, broken furnace slag and chippings, rough furnace slag for foundations, granite setts, concrete flags, blue paving bricks, sanitary pipes and gullies, disinfectants, cast-iron work, ironmongery and general stores. Particulars and forms of tender may be obtained upon application at office of Mr. A. Burton, A.M.I.C.E., etc., Borough Surveyor, Town Hall, Stoke-upon-Trent. Tenders, duly sealed and endorsed, must be delivered to Surveyor not later than 12 noon on February 18.

Public Appointments.

Nature of Appointment.	By whom Advertised.	Salary.	Applications to be in
*ARCHITECTURAL ASSISTANT	Singapore Municipal Comrs.	2,700 dollars per annum, etc.	Jan. 21
*CLERK OF WORKS	Southwark Borough Council	3*l*. 3s. per week	Jan. 31

Auction Sales.

Nature and Place of Sale.	By whom Offered.	Date of Sale.
*BLDRS'. MERCHANT'S STK.-IN-TRADE, G. W. RY. GOODS DEPÔT, W.—On the Premises	J. T. Skelding	Jan. 15
*MATERIALS—At Gothic House, Third Cross-road, Staines-road, Twickenham	Hooker & Webb	Jan. 17
*CONTRS'. PLANT AND MACHINERY, DEPÔT, ISLIP-ST., KENTISH TOWN—On Premises	J. T. Skelding	Jan. 21
*BUILDER'S IRONMONGERY, ETC., BATTERSEA PARK-ROAD, S.W.—At the Yard	H. W. Smith	Jan. 22
*FREEHOLD BUILDING PLOTS, RAYNES PARK, S.W.—At the Mart	J. T. Skelding	do.
*BUILDER'S PLANT AND STOCK—At the Depôts, Handsworth and Dorset rds., S. Tottenham	Fuller, Horsey, Sons, & Cassell	Jan. 29
*FREEHOLD BUILDING SITE, OXFORD CIRCUS—At the Mart	Southon & Robinson	Jan. 31
*CONTRACTOR'S PLANT AND MACHINERY—At the Depôt, Coteford-road, Lower Tooting	Fuller, Horsey, Sons, & Cassell	Feb. 5
*BUILDERS', ETC., STOCK, 87, HIGH-STREET, ALTON, HANTS—On the Premises	J. T. Skelding	do.
*LEASEHOLD WORKS, WITH SAW MILL, 87, HIGH-ST., ALTON, HANTS—On the Premises	J. T. Skelding	do.

PATENTS.—*Continued from page* 43.

15,314 of 1906.—G. F. BISHOPRIC: *Material Applicable for Use in Forming Packing-cases and the like, and also the Walls, Ceilings, and other Parts of Buildings.*

This relates to material applicable for use in walls, ceilings, and the like, for parts of buildings, and consists essentially of a composite strip comprising an interior layer of paper and an exterior layer of asphalt mastric.

6,333 of 1906.—S. BARNETT, R. J. HADLINGTON, and S. HINTON: *Continuous Brick Kilns and the like.*

This relates to continuous brick kilns and the like, and is characterised by the arrangement of two intermediate grates or furnaces to each respective kiln, in combination with an arrangement of flues and dampers, whereby the heat from each respective kiln can be directed into any other kiln or furnace of the series.

7,073 of 1906.—W. CLARK (THE STANDARD PAINT COMPANY): *Manufacture of Paint.*

This relates to a process of manufacturing liquid cementing paint, which consists in incorporating or mixing with one another a volatile solvent, a non-gelatinising weather-proof plastic pitch of a colour adapted to be dominated by that of an added pigment, and a pigment which is relatively inert with respect to the other ingredients.

13,416 of 1906.—A. B. STOKES: *Domestic Stoves or Fireplaces.*

This relates to a domestic stove or fireplace in which the current of air for supporting the combustion of the fuel in the grate passes downward through the fuel to the ash-pit, which is closed in front, and thence to the flue or chimney, and in which the space above the grate or fire is closed except at the front, and is characterised by having a flue at the back constructed at or near the top of the stove or fireplace, with a bent or inclined portion, said flue corresponding in width to the opening at the front of the grate, but being comparatively narrow from back to front, the stove being provided with a false back so arranged as to leave a space opening into the ash-pit at or near the rear or inner end thereof, between it and the back proper, which latter extends below the plane of the bottom of the grate.

18,009 of 1906.—J. MOUHLEN: *Cocks for Controlling the Supply of Water to Domestic or Similar Service Pipes and Taps.*

This relates to controlling the supply of water to domestic and similar service pipes and taps by

the insertion in the water pipe immediately behind the service tap of a three-way cock, the plug of which is so constructed that the supply of water to the service pipe or to the service tap or to both simultaneously can be shut off, in which latter case the service pipe is in communication with the service tap.

14,140 of 1906.—EVERED & Co., LTD., and S. EVERED: *Fanlight Openers.*

This relates to fanlight openers in which a cord pulley on a worm shaft is rotated through an endless cord, the worm gearing with a worm pinion on a spindle at right angles to the worm axis, and consists in the arrangement on the worm pinion shaft of a chain or sprocket wheel, and the combination therewith of a chain gearing with the said chain or sprocket wheel, one end of which chain is secured to the fixing plate of the opener, and the other end to the fixed frame of the fanlight or to the hinged frame, according as to whether the fanlight is to open inwards or outwards.

26,364 of 1905.—O. LAVANCHY: *Armoured Concrete Structures.*

This relates to an armoured concrete structure, and consists in the employment of a beam of armoured concrete of T-section capable of being used equally well for the purpose with the T in its ordinary upright position, or with the T in an inverted position, owing to the arrangement of its metallic armouring. The main armouring is in the vertical member of the T, and consists of upper and lower rods having their ends crossed in order to connect the portion of the beam under tension to the portion under compression in the upright position of the T, as well as in the inverted position, the said rods being also provided with notches or holes to receive connecting-rods.

16,038 of 1906.—C. W. KUCHENMEISTER and P. THOMANN: *Brick Moulding Machines.*

This relates to brick moulding machines, and is characterised in that the two outer notches on the transverse partitions are entirely dispensed with, and substituted by projections on the ends of the partitions, which grip under the longitudinal walls for the purpose of lessening the friction caused by the transverse partitions moving or traversing between the two outer longitudinal walls.

1,981 of 1906.—S. PETERS: *Means for and the Method of Mixing Concrete and the like.*

This relates to a platform for mixing concrete and the like, constructed of longitudinal pivoted pieces, and consists in the combination therewith of means for raising the pieces into a horizontal transverse position, and for holding them in that position, which means, when withdrawn, allow the pieces to return on their pivots.

16,698 of 1906.—E. OFFENBACHER: *Form of Glass Slab or Plate for Glazing Roofs and the like.*

This relates to glass slabs or plates for skylights and the like, having ribbed or corrugated excrescences at right angles to one another, which ribs effect the diffusion of the light passing through, and prevent the total reflection in parts, while at the same time the corrugations down the slope are so shallow that no portion of the slope has a return upward tendency, and consequently there are no hollows in which dirt or water can lodge.

17,972 of 1906.—E. J. C. BERARD: *Construction of Reinforced Cement or Concrete.*

This relates to a construction of armoured concrete, and is characterised by vertical and horizontal studs of armoured concrete, provided with metal fittings to permit of their being assembled on the works, and when assembled forming the framework of the construction, in combination with filling panels of armoured or unarmoured concrete arranged in grooves or rabbets in such studs and capable of being fixed to said studs by means of metal fittings.

20,927 of 1906.—J. W. CRAVEN and J. H. CRAVEN: *Machines for Making Briquettes, Bricks, Blocks, Tiles, and the like.*

This relates to a machine for making briquettes and the like, having a rotatable moulding table, ratchet teeth, or hooks, on the periphery of the said table, a pawl capable of engaging the said teeth or hooks, and carried by a slider capable of engaging with and sliding in a groove in the periphery of the said table, and means for reciprocating the said slider and pawl, which means consist of a connecting-rod operated by a crank disc driven by elliptical gearing.

MEETINGS.

FRIDAY, JANUARY 11.

Architectural Association.—Mr. Temple Moore on "The Arrangement and Design of Modern Churches." 7.30 p.m.

Institution of Civil Engineers (Students' Meeting).—Mr. A. T. Weston on "The Balancing of Internal-combustion Motors applied to Marine Propulsion." 8 p.m.

Glasgow Architectural Craftsmen's Society.—Annual dinner. 7.30 p.m.

SATURDAY, JANUARY 12.

Architectural Association.—First spring visit, to the Scottish Provident Institution (adjoining the Mansion House). 1.30 p.m. A visit will afterwards be paid to the additions to St. Bartholomew's Hospital, Smithfield.

MONDAY, JANUARY 14.

Surveyors' Institution.—Resumed discussion on the paper read by Mr. E. H. Blake, on November 26, and entitled "Some Notes on Sanitary Law." 8 p.m.

Bristol Society of Architects.—Messrs. G. Hubbard, F.S.A., and A. W. Cross, M.A., on "The Revision of the Charter of the Royal Institute of British Architects." 8 p.m.

University of London.—Mr. Banister Fletcher on "The Temples of the Romans." 8 p.m.

TUESDAY, JANUARY 15.

Royal Institution.—Professor Percy Gardner, F.S.A., on "The Sculpture of Ægina in Relation to Recent Discovery."—I. 3 p.m.

University College.—Ten lectures by Professor F. M. Simpson on "Seven Ages of Architecture." I.—Ancient. 8 p.m.

London Master Builders' Association.—Deputation to Westminster City Council Works Committee.

Institution of Civil Engineers.—Paper to be further discussed—"The Simplon Tunnel," by Mr. Francis Fox, M.Inst.C.E. 8 p.m.

WEDNESDAY, JANUARY 16.

Society of Arts.—Adjourned discussion on Mr. J. W. Gordon's paper on "Patent Law Reform." 8 p.m.

Builders' Foremen and Clerks of Works' Institution.—Annual meeting of the members. 8 p.m.

Edinburgh Architectural Association.—Mr. Walter Gilbert on "The Sculptor and the Garden." 8 p.m.

Northern Architectural Association.—Mr. Harbottle Reed on "Devonshire Churches." 7.30 p.m.

Junior Institution of Engineers (at the Westminster Palace Hotel).—Dr. H. S. Hele-Shaw, F.R.S., on "Stream Lines and their Application to Engineering Problems." 8 p.m.

National Federation of Master Builders.—Journal Committee at 2.30 p.m., at 31 and 32, Bedford-street, Strand, W.C.

Institution of Civil Engineers.—Students' visit to the electricity generating-station of the Great Western Railway at Park Royal.

THURSDAY, JANUARY 17.

Royal Institution.—Mr. W. Napier Shaw, M.A., on "Recent Advances in the Exploration of the Atmosphere."—I. 3 p.m.

London Master Builders' Association.—Council Meeting at 31, Bedford-street, Strand, W.C. 4 p.m.

FRIDAY, JANUARY 18.

Edinburgh Architectural Association. — Associates' Annual Dinner.

Institution of Mechanical Engineers.—(1) Notice will be given by the Council of proposed alterations to the By-laws. (2) Adjourned discussion on "Lighting of Railway Premises, Indoor and Outdoor," by Mr. H. Fowler. (3) Professor H. C. H. Carpenter, M.A., Ph.D., and Mr. C. A. Edwards, of the National Physical Laboratory, on the Eighth Report to the Alloys Research Committee: "On the Properties of the Alloys of Aluminium and Copper." 8 p.m.

SATURDAY, JANUARY 19.

Junior Institution of Engineers.—Visit Royal Naval College, Greenwich, for inspection of New Engineering Laboratory. 2.30 p.m.

PUBLISHER'S NOTICES.

Nat. Tel., 6112 Gerrard. Telegrams, "The Builder, London."

THE INDEX (with TITLE-PAGE) for VOLUME XCI. (July to December, 1906) is given as a supplement with the present issue.

CLOTH CASES for Binding the Numbers are now ready, price 2s. 6d. each; also

READING CASES (Cloth), with Strings price 9d. each.

THE NINETY-FIRST VOLUME of "The Builder" (bound), price Twelve Shillings and Sixpence, will be ready on the 23rd inst.

SUBSCRIBERS' VOLUMES, on being sent to the Office, will be bound at a cost of 3s. 6d. each.

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PREPAYMENT IS ABSOLUTELY NECESSARY.

*** Stamps *must not* be sent, but all sums should be remitted by Postal Orders, payable to J. MORGAN, and addressed to the Publisher of "THE BUILDER," 4, Catherine Street, W.C.

Advertisements for the current week's issue are received up to HALF-PAST ONE p.m. on THURSDAY, but "Classification" is impossible in the case of any which may reach the Office after HALF-PAST TWELVE p.m. on that day. Those intended for the Outside Wrapper should be in by TWELVE NOON on WEDNESDAY.

ALTERATIONS IN STANDING ADVERTISEMENTS or ORDERS TO DISCONTINUE same must reach the Office before TEN o'clock on WEDNESDAY MORNING.

The Publisher cannot be responsible for DRAWINGS, TESTIMONIALS, etc., left at the Office in reply to advertisements, and strongly recommends that of the latter COPIES ONLY should be sent.

ADVERTISERS in "THE BUILDER" may have *Replies addressed to the Office*, 4, Catherine Street, Covent Garden, W.C., *free of charge*. Letters will be forwarded if addressed envelopes are sent, together with sufficient stamps to cover the postage. Unused stamps are returned to advertisers the week after publication.

N.B.—The Reply Boxes are not intended for trade lists, circulars, and the like; should these be received, they cannot (if noticed) be forwarded.

AN EDITION Printed on THIN PAPER, for FOREIGN and COLONIAL CIRCULATION, is issued every week.

READING CASES { NINEPENCE EACH. By post (carefully packed) 1s.

TO CORRESPONDENTS.

NOTE.—The responsibility of signed articles, letters, and papers read at meetings rests, of course, with the authors.

We cannot undertake to return rejected communications; and the Editor cannot be responsible for drawings, photographs, manuscripts, or other documents, or for models or samples, sent to or left at this office, unless he has specially asked for them.

Letters or communications (beyond mere news items) which have been duplicated for other journals are NOT DESIRED.

All communications must be authenticated by the name and address of the sender whether for publication or not. No notice can be taken of anonymous communications.

We are compelled to decline pointing out books and giving addresses.

Any commission to a contributor to write an article, or to execute or lend a drawing for publication, is given subject to the approval of the article or drawing, when received, by the Editor, who retains the right to reject it if unsatisfactory. The receipt by the author of a proof of an article in type does not necessarily imply its acceptance. The Editor cannot undertake to read and consider articles offered for acceptance unless they are type-written.

All communications regarding literary and artistic matters should be addressed to THE EDITOR; those relating to advertisements and other exclusively business matters should be addressed to THE PUBLISHER, and *not* to the Editor.

PRICES CURRENT OF MATERIALS.

*** Our aim in this list is to give, as far as possible, the *average* prices of materials, not necessarily the lowest. Quality and quantity obviously affect prices—a fact which should be remembered by those who make use of this information.

	£	s.	d.		
BRICKS, &c.					
Hard Stocks.....	1	8	0	per 1000 alongside, in river.	
Rough Stocks and Grizzles.....	1	6	0	"	"
Picked Stocks for Facings	2	10	0	"	delivered.
Flettons.....	1	8	0	"	at railway depôt.
Red Wire Cuts ...	1	14	0	"	"
Best Fareham Red	3	12	0	"	"
Best Red Pressed Ruabon Facing..	5	0	0	"	"
Best Blue Pressed Staffordshire ...	3	15	0	"	"
Do. Bullnose	4	0	0	"	"
Best Stourbridge Fire Bricks	3	14	0	"	"
GLAZED BRICKS.					
Best White and Ivory Glazed Stretchers.....	12	0	0	"	"
Headers.....	11	0	0	"	"
Quoins, Bullnose, and Flats	16	0	0	"	"
Double Stretchers	19	0	0	"	
Double Headers ...	16	0	0	"	"
One Side and two Ends	19	0	0	"	"
Two Sides and one End.....	20	0	0	"	"
Splays, Chamferred, Squints..	20	0	0	"	"
Best Dipped Salt Glazed Stretchers, and Header.	12	0	0	"	"
Quoins, Bullnose, and Flats	14	0	0	"	"
Double Stretchers	15	0	0	"	"
Double Headers ...	14	0	0	"	
One Side and two Ends	15	0	0	"	"
Two Sides and one End.....	15	0	0	"	"
Splays, Chamferred, Squints..	14	0	0	"	"
Second Quality White and Dipped Salt Glazed	2	0		"	less than best.

	s.	d.		
Thames and Pit Sand	7	0	per yard, delivered.	
Thames Ballast	5	6	"	"
Best Portland Cement	28	0	per ton,	"
Best Ground Blue Lias Lime	19	0	"	"

NOTE.—The cement or lime is exclusive of the ordinary charge for sacks.

Grey Stone Lime ..... 11s. 6d. per yard, delivered.
Stourbridge Fireclay in sacks 27s. 0d. per ton at rly. dpt.

	s.	d.		
STONE.				
BATH STONE—delivered on road waggons, Paddington Depôt	1	6½	per ft. cube.	
Do. do. delivered on road waggons, Nine Elms Depôt	1	8½	"	"
PORTLAND STONE (20 ft. average)— Brown Whitbed, delivered on road waggons, Paddington Depôt, Nine Elms Depôt, or Pimlico Wharf...	2	1	"	"
White Basebed, delivered on road waggons, Paddington Depôt, Nine Elms Depôt, or Pimlico Wharf...	2	2½	"	"
	s.	d.		
Ancaster in blocks.....	1	10	per ft. cube, deld. rly. depôt.	
Beer "	1	6	"	"
Greenshill "	1	10	"	"
Darley Dale in blocks ...	2	4	"	"
Red Corsehill " ...	2	2	"	"
Closeburn Red Freestone	2	0	"	"
Red Mansfield "	2	4	"	"
YORK STONE—*Robin Hood Quality.*				
Scappled random blocks.	2	10	"	"
6 in. sawn two sides landings to sizes (under 40 ft. super.).....	2	3	per ft. super.,	"

STONE (*continued*).

YORK STONE—*Robin Hood Quality* (*continued*).

6 in. rubbed two sides ditto, ditto	2	s. d. 6	per ft.super.deld.rly.depôt.	
3 in. sawn two sides slabs (random sizes)	0	11½	,,	,,
2 in. to 2½ in. sawn one side slabs (random sizes)	0	7½	,,	,,
1½ in. to 2 in. ditto, ditto	0	6	,,	,,
HARD YORK—				
Scappled random blocks.	3	0	per ft.cube,	,,
6 in. sawn two sides landings to sizes (under 40 ft. super.)	2	8	per ft. super.,	,,
6 in. rubbed two sides ditto	3	0	,,	,,
3 in. sawn two sides slabs (random sizes)	1	2	,,	,,
2 in. self-faced random flags	0	5	,,	,,

SLATES.

In. In.	£	s.	d.	
20×10 best blue Bangor	13	2	6	per 1000 of 1200 at r. d.
20×12 ,, ,,	13	17	6	,, ,,
20×10 first quality ,,	13	0	0	,, ,,
20×12 ,, ,,	13	15	0	,, ,,
16×8 ,, ,,	7	5	0	,, ,,
20×10 best blue Portmadoc	12	12	6	,, ,,
16×8 ,, ,,	6	12	6	,, ,,
20×10 best Eureka unfading green	15	17	6	,, ,,
20×12 ,, ,,	18	7	6	,, ,,
18×10 ,, ,,	13	5	0	,, ,,
16×8 ,, ,,	10	5	0	,, ,,
20×10 permanent green	11	12	6	,, ,,
18×10 ,, ,,	9	12	6	,, ,,
16×8 ,, ,,	6	12	6	,, ,,

TILES.

	s.	d.	
Best plain red roofing tiles	42	0	per 1000 at rly. depôt.
Hip and Valley tiles	3	7	per doz. ,,
Best Broseley tiles	50	0	per 1000 ,,
Do. Ornamental tiles	52	6	,, ,,
Hip and Valley tiles	4	0	per doz. ,,
Best Ruabon red, brown, or brindled do. (Edwards)	57	6	,, ,,
Do. Ornamental do.	60	0	,, ,,
Hip tiles	4	0	per doz. ,,
Valley tiles	3	0	,, ,,
Best Red or Mottled Staffordshire do. (Peakes)	51	9	per 1000 ,,
Do. Ornamental do.	54	6	,, ,,
Hip tiles	4	1	per doz. ,,
Valley tiles	3	8	,, ,,
Best "Rosemary" brand plain tiles	48	0	per 1000 ,,
Best Ornamental tiles	50	0	,, ,,
Hip tiles	4	0	per doz. ,,
Valley tiles	3	8	,, ,,
Best "Hartshill" brand plain tiles, sand-faced	50	0	per 1000 ,,
Do. pressed	47	6	,, ,,
Do. Ornamental do.	50	0	,, ,,
Hip tiles	4	0	per doz. ,,
Valley tiles	3	6	,, ,,

WOOD.

BUILDING WOOD.	At per standard. £	s.	d.		£	s.	d.
Deals: best 3 in. by 11 in. and 4 in. by 9 in. and 11 in.	13	10	0	...	15	0	0
Deals: best 3 by 9	13	0	0	...	14	0	0
Battens: best 2½ in. by 7 in. and 8 in., and 3 in. by 7 in. and 8 in.	11	0	0	...	12	0	0
Battens: best 2½ by 6 and 3 by 6	0	10	0	less than 7 in. and 8 in.			
Deals: seconds	1	0	0	less thn best.			
Battens: seconds	0	10	0	,, ,,			
2 in. by 4 in. and 2 in. by 6 in.	9	0	0	...	10	0	0
2 in. by 4½ in. and 2 in. by 5 in.	8	10	0	...	9	10	0
Foreign Sawn Boards—							
1 in. and 1¼ in. by 7 in.	0	10	0	more than battens.			
¾ in.	1	0	0	,,			
	At per load of 50 ft.						
Fir timber: best middling Danzig or Memel (average specification)	4	10	0	...	5	0	0
Seconds	4	0	0	...	4	10	0
Small timber (8 in. to 10 in.)	3	12	6	...	3	15	0
Small timber (6 in. to 8 in.)	3	0	0	...	3	10	0
Swedish balks	2	10	0	...	3	0	0
Pitch-pine timber (30 ft. average)	4	0	0	...	4	15	0

JOINERS' WOOD.	At per standard. £	s.	d.		£	s.	d.
White Sea: first yellow deals, 3 in. by 11 in.	24	0	0	...	25	0	0
3 in. by 9 in.	22	0	0	...	23	0	0
Battens, 2½ in. and 3 in. by 7 in.	16	10	0	...	18	0	0
Second yellow deals, 3 in. by 1 in.	18	10	0	...	20	0	0
,, ,, 3 in. by 9 in.	17	10	0	...	19	0	0
Battens, 2½ in. and 3 in. by 7 in.	13	10	0	...	14	10	0
Third yellow deals, 3 in. by 11 in. and 9 in.	13	10	0	...	15	0	0
Battens, 2½ in. and 3 in. by 7 in.	11	0	0	...	12	0	0
Petersburg first yellow deals, 3 in. by 11 in.	21	0	0	...	22	10	0
Do. 3 in. by 9 in.	18	0	0	...	19	10	0
Battens	13	10	0	...	15	0	0
Second yellow deals, 3 in. by 11 in.	16	0	0	...	17	0	0
Do. 3 in. by 9 in.	14	10	0	...	16	0	0
Battens	11	0	0	...	12	10	0
Third yellow deals, 3 in. by 11 in.	13	0	0	...	14	0	0
Do. 3 in. by 9 in.	12	10	0	...	14	0	0
Battens	10	0	0	...	11	0	0
White Sea and Petersburg—							
First white deals, 3 in. by 11 in.	14	10	0	...	15	10	0
,, ,, 3 in. by 9 in.	13	10	0	...	14	10	0
Battens	11	0	0	...	12	0	0
Second white deals, 3 in. by 11 in.	13	10	0	...	14	10	0
,, ,, 3 in. by 9 in.	12	10	0	...	13	10	0
,, ,, battens	10	0	0	...	11	0	0
Pitch-pine: deals	18	0	0	...	21	0	0
Under 2 in. thick extra	0	10	0	...	1	0	0
Yellow Pine—First, regular sizes	44	0	0	upwards.			
Oddments	32	0	0	,,			
Seconds, regular sizes	33	0	0	,,			
Yellow Pine oddments	28	0	0	,,			

WOOD (*continued*).

JOINERS' WOOD—(*continued*)	At per standard. £	s.	d.		£	s.	d.
Kauri Pine—Planks, per ft. cube	0	3	6	...	0	5	0
Danzig and Stettin Oak Logs—							
Large, per ft. cube	0	3	0	...	0	3	6
Small ,, ,,	0	2	6	...	0	2	9
Wainscot Oak Logs, per ft. cube	0	5	6	...	0	6	0
Dry Wainscot Oak, per ft. sup. as inch	0	0	8½	...	0	0	9½
¾ in. do. do	0	0	7	...	—		
Dry Mahogany—Honduras, Tabasco, per ft. super. as inch	0	0	9	...	0	1	0
Selected, Figury, per ft. super. as inch	0	1	6	...	0	2	6
Dry Walnut, American, per ft. super. as inch	0	0	10	...	0	1	0
Teak, per load	17	0	0	...	22	0	0
American Whitewood Planks, per ft. cube	0	4	0	...	0	5	0
Prepared Flooring, etc.—	Per square.						
1 in. by 7 in. yellow, planed and shot	0	13	6	...	0	17	6
1 in. by 7 in. yellow, planed and matched	0	14	0	...	0	18	0
1¼ in. by 7 in. yellow, planed and matched	0	16	0	...	1	0	0
1 in. by 7 in. white, planed and shot	0	12	0	...	0	14	6
1 in. by 7 in. white, planed and matched	0	12	6	...	0	15	0
1¼ in. by 7 in. white, planed and matched	0	15	0	...	0	16	6
¾ in. by 7 in. yellow, matched and beaded or V-jointed brds.	0	11	0	...	0	13	6
1 in. by 7 in. ,, ,,	0	14	0	...	0	18	0
¾ in. by 7 in. white ,, ,,	0	10	0	...	0	11	6
1 in. by 7 in. ,, ,, ,,	0	12	9	...	0	15	0
6 in. at 6d. to 9d. per square less than 7 in.							

JOISTS, GIRDERS, &c.

	In London, or delivered Railway Vans, per ton. £	s.	d.		£	s.	d.
Rolled Steel Joists, ordinary sections	7	7	6	...	7	15	0
Compound Girders, ordinary sections	9	10	0	...	10	10	0
Steel Compound Stanchions	12	5	0	...	13	5	0
Angles, Tees, and Channels, ordinary sections	9	5	0	...	10	5	0
Flitch Plates	9	5	0	...	10	5	0
Cast Iron Columns and Stanchions including ordinary patterns	8	0	0	...	9	0	0

METALS.

IRON—	Per ton, in London. £	s.	d.		£	s.	d.
Common Bars	8	10	0	...	9	0	0
Staffordshire Crown Bars, good merchant quality	9	0	0	...	9	10	0
Staffordshire "Marked Bars"	11	0	0	...	—		
Mild Steel Bars	9	5	0	...	9	10	0
Hoop Iron, basis price	9	10	0	...	9	15	0
,, ,, Galvanised	17	10	0	...	—		
(*And upwards, according to size and gauge.)							
Sheet Iron Black—							
Ordinary sizes to 20 g.	10	0	0	...	—		
,, ,, 24 g.	11	0	0	...	—		
,, ,, 26 g.	12	10	0	...	—		
Sheet Iron, Galvanised, flat, ordinary quality—							
Ordinary sizes, 6 ft. by 2 ft. to 3 ft. to 20 g.	14	10	0	...	—		
Ordinary sizes to 22 g. and 24 g.	15	0	0	...	—		
,, ,, 26 g.	15	10	0	...	—		
Sheet Iron, Galvanised, flat, best quality—							
Ordinary sizes to 20 g.	17	10	0	...	—		
,, ,, 22 g. and 24 g.	18	0	0	...	—		
,, ,, 26 g.	19	10	0	...	—		
Galvanised Corrugated Sheets—							
Ordinary sizes 6 ft. to 8 ft. 20 g.	14	10	0	...	—		
,, ,, 22 g. and 24 g.	14	15	0	...	—		
,, ,, 26 g.	16	0	0	...	—		
Best Soft Steel Sheets, 6 ft. by 2 ft. to 3 ft. by 20 g. and thicker	12	0	0	...	—		
Best Soft Steel Sheets, 22 g. & 24 g.	13	0	0	...	—		
,, ,, ,, 26 g.	15	0	0	...	—		
Cut Nails, 3 in. to 6 in.	10	0	0	...	10	10	0
(Under 3 in., usual trade extras.)							

LEAD, &c.

	Per ton, in London. £	s.	d.		£	s.	d.
LEAD—Sheet, English, 3lb. and up.	23	0	0	...	—		
Pipe in coils	23	10	0	...	—		
Soil pipe	25	10	0	...	—		
Compo pipe	26	10	0	...	—		
ZINC—Sheet—							
Vieille Montagne ton	34	5	0	...	—		
Silesian	34	0	0	...	—		
COPPER—							
Strong Sheet per lb.	0	1	4	...	—		
Thin ,, ,,	0	1	5	...	—		
Copper nails ,,	0	1	3	...	—		
BRASS—							
Strong Sheet ,,	0	1	2	...	—		
Thin ,, ,,	0	1	3	...	—		
TIN—English Ingots ,,	0	1	11	...	—		
SOLDER—Plumbers' ,,	0	0	9	...	—		
Tinmen's ,,	0	0	11½	...	—		
Blowpipe ,,	0	1	1	...	—		

ENGLISH SHEET GLASS IN CRATES OF STOCK SIZES.

15 oz. thirds	2½d. per ft. delivered.
,, fourths	1¾d. ,, ,,
21 oz. thirds	3¼d. ,, ,,
,, fourths	2¼d. ,, ,,
26 oz. thirds	4¼d. ,, ,,
,, fourths	3¼d. ,, ,,
32 oz. thirds	5d. ,, ,,
,, fourths	4¼d. ,, ,,
Fluted Sheet, 15 oz.	3¼d. ,, ,,
,, 21 oz.	4¼d. ,, ,,

ENGLISH ROLLED PLATE IN CRATES OF STOCK SIZES.

⅛ Hartley's	2¼d. per ft. delivered.
¼ ,,	2¼d. ,, ,,
½ ,,	3d. ,, ,,
Figured and Oxford Rolled "Oceanic" Glass, white	4d. ,, ,,
Do. ,, tinted	5¼d. ,, ,,

OILS, &c.

		£	s.	d.
Raw Linseed Oil in pipes	per gallon	0	1	10
,, ,, ,, in barrels	,,	0	1	11
,, ,, ,, in drums	,,	0	2	1
Boiled ,, ,, in pipes	,,	0	2	0
,, ,, ,, in barrels	,,	0	2	1
,, ,, ,, in drums	,,	0	2	3
Turpentine in barrels	,,	0	4	0
,, in drums	,,	0	4	2
Genuine Ground English White Lead	per ton	25	0	0
Red Lead, Dry	,,	24	0	0
Best Linseed Oil Putty	per cwt.	0	7	0
Stockholm Tar	per barrel	1	12	0

VARNISHES, &c.

	Per gallon. £	s.	d.
Fine Pale Oak Varnish	0	8	0
Pale Copal Oak	0	10	6
Superfine Pale Elastic Oak	0	12	6
Fine Extra Hard Church Oak	0	10	0
Superfine Hard-drying Oak, for seats of Churches	0	14	0
Fine Elastic Carriage	0	12	6
Superfine Pale Elastic Carriage	0	16	0
Fine Pale Maple	0	16	0
Finest Pale Durable Copal	0	18	0
Extra Pale French Oil	1	1	0
Eggshell Flatting Varnish	0	18	0
White Copal Enamel	1	4	0
Extra Pale Paper	0	12	0
Best Japan Gold Size	0	10	6
Best Black Japan	0	16	0
Oak and Mahogany Stain	0	9	0
Brunswick Black	0	8	6
Berlin Black	0	16	0
Knotting	0	10	0
French and Brush Polish	0	10	0

TERMS OF SUBSCRIPTION.

"THE BUILDER" (Published Weekly) is supplied DIRECT from the Office to residents in any part of the United Kingdom at the rate of 19s. per annum (53 numbers) PREPAID. To all parts of Europe, America, Australia, New Zealand, India, China, Ceylon, etc., 26s. per annum.

Remittances (payable to J. MORGAN) should be addressed to The Publisher of "THE BUILDER," 4, Catherine-street, W.C.

SUBSCRIBERS in LONDON and the SUBURBS, by prepaying at the Publishing Office 19s. per annum (52 numbers) or 4s. 9d. per quarter (13 numbers), can ensure receiving "The Builder" by *Friday Morning's Post*.

TENDERS.

Communications for insertion under this heading should be addressed to "The Editor," and must reach us *not later than* 10 *a.m. on Thursdays*. [N.B.—We cannot publish Tenders unless authenticated either by the architect or the building-owner; and we cannot publish announcements of Tenders accepted unless the amount of the Tender is stated nor any list in which the lowest Tender is under 100*l.*, unless in some exceptional cases and for special reasons.]

* Denotes *accepted*. † Denotes *provisionally accepted*.

ASHFORD.—For widening bridge over the Ditch, Beaver-road, for the Urban District Council. Mr. W. Terrill, Surveyor, North-street, Ashford, Kent:—

C. J. Howland	£119 12	G. Browning	£102 0
Smith & Son	118 0	G. Chesswass, Isleworth, London*	75 10
E. T. Bowles	118 0		

CARMARTHEN.—For erecting new workhouse, for the Guardians. Mr. A. I. Jones, architect, 2, Spilman-street, Carmarthen:—

R. Davies, St. Catherine-street, Carmarthem £8,820

CHIGWELL.—For sewage disposal works and laying 2,500 lineal yds. of pipe sewers, etc., for Epping Rural District Council. Mr. H. Tooley, A.R.I.B.A., Buckhurst Hill.

T. W. Pedrette	£5,400	D. T. Jackson	£3,953
Pedrette & Co	5,150	J. H. Macdonald	3,704
T. Adams	4,971	G. Napier & Sons	3,513
E. E. Winch	4,282	W. & C. French, Buckhurst Hill*	3,416
W. Iles	4,050		

[Engineer's estimate, £3,750].

ELY.—For private street improvement works, Brook-lane, Ely, near Cardiff, for Llandaff and Dinas Powis Rural District Council. Mr. J. Holden, Surveyor, Park House, 20, Park-place, Cardiff.

F. C. Williams	£244 7 4	T. R. Williams	£201 0 3
E. A. A. Hatherley	214 18 10	E. Osmond & Sons, Ely*	199 17 2
C. Davies	211 13 8		

FAREHAM (Hants).—For erecting a school building and offices, master's house, etc., for Price's Charity. Mr. Wilberforce Cobbett, architect, Fareham, Hants:—

Wakeham Bros.	£9,435 0 0
Hylett & Hammond	8,696 0 0
W. O. & H. Way	8,560 9 10
Stephens, Bastow, & Co.	8,498 0 0
Haslemere Builders, Ltd.	8,200 0 0
S. Salter	8,136 0 0
W. T. Dugan	8,101 17 7
F. Corke	8,095 0 0
Franklin's Executors	7,998 0 0
H. Plumber	7,942 0 0
Bagshaw & Son	7,900 0 0
Jenkins & Sons	7,864 0 0
Rowland Bros.	7,749 0 0
E. Willcox	7,740 0 0
Coston & Co.	7,729 0 0
H. Jones	7,679 18 0
Middleton & Co., Ltd.	7,650 0 0
Lear & Son	7,616 0 0
T. J. Hawkins & Co.	7,601 0 0
F. Osman	7,600 0 0
J. Croad	7,576 0 0
Musslewhite & Sapp	7,573 0 0
H. C. Sweetland	7,570 0 0
P. H. Dowdell	7,469 0 0
E. & A. Spriggings	7,440 0 0
J. Crockerell	7,308 0 0
A. J. Colbourne	7,097 0 0
J. G. Norman	6,930 0 0
J. Hunt, South Wharf, Gosport	6,856 11 0

HENLEY-ON-THAMES.—For alterations and additions and converting into shop No. 52, Bell-street, Henley-on-Thames, for the Reading Industrial Co-Operative Society, Ltd. Mr. W. G. A. Hambling, architect, Reading:—

G. J. Greenaway & Son	£695 0	G. S. Lewis & Bro.	£679 0
		Walden & Cox*	512 6

HULL.—For electric light installation, fittings, and fans required at the Villa-place School, for the Education Committee. Mr. J. H. Hirst, City Architect, Town Hall, Hull:—

A. Watson & Co.	£1,000 0	King & Co., Ltd.	£750 0
H. Hyde	902 18	C. Wokes & Co.	699 0
W. J. Fryer & Co.	895 0	W. L. Harrison*	697 15
C. Pullan	852 8		

LEYTON.—For private street works, for the Urban District Council. Mr. W. Dawson, Surveyor, Town Hall, Leyton:—

Fry Bros.	£4,092 4 7	J. Jackson	£3,641 13 8
Hewett & Sons	3,917 8 3	W. Iles	3,548 0 0
T. Adams	3,907 9 2	J. Anderson	3,502 1 5
T. Free & Sons	3,821 3 9	O. T. Gibbons	3,371 0 0
W. Griffiths & Co., Ltd.	3,732 9 2	W. Manders, Leyton*	3,172 17 0

LONDON.—For erecting a public library at the junction of the Old and New Kent-roads, for Southwark Borough Council. Mr. Claude Batley, architect, 115, Gower-street, W.C.:—

Perry Bros., 21, Whitecross-street, E.C.† £7,200

LONDON.—For making-up and paving Larden-road, for Hammersmith Borough Council. Mr. Mair, M.I.C.E., Borough Surveyor, Town Hall, Broadway, Hammersmith:—

J. Mowlem & Co., Ltd.	£1,084	H. J. Greenham	£949
S. Kavanagh & Co.	1,068	H. J. Greeham (Excelsior stone)*	979
J. Mears	1,010	H. Morecroft	972
W. H. Wheeler	998	G. Wimpey & Co.	965
W. H. Wheeler (Excelsior stone)	971		

LUTON.—For paving, etc., Clarendon-road, and Ridgeway-road, for the Town Council. Mr. S. F. L. Fox, Surveyor. Quantities by Surveyor:—

Clarendon-road.

Free & Sons	£814 13 0	G. Powdrill, Luton*	£711 17 11
Patent Victoria Stone Co.	791 4 10		

Ridgeway-road.

Free & Sons	£429 2 6	G. Powdrill, Luton*	£373 4 4
Patent Victoria Stone Co.	416 19 7		

MILFORD.—For erecting a manse at Milford, co. Donegal, Ireland. Mr. J. M. Robinson, architect, 7, East-wall, Londonderry:—

J. McBride	£793 0	W. Mooney	£590 0
J. E. Mandtrand	746 10	D. Montgomery	580 0
R. Colhoun	730 0	J. Montgomery	570 0
Smith Bros.	650 0	J. Johnston, Letterkenny*	550 0
W. Wilson	640 0		

NETTLEBED (Oxon).—For pair of cottages and alterations to house. Mr. W. G. A. Hambling, architect, Reading:—

Cottages.

Brown & Sons, Nettlebed* £525

House.

Brown & Sons, Nettlebed* 200

NEWBURN.—For proposed new infant school at Newburn, for his Grace the Duke of Northumberland, K.G. Mr. J. Wightman Douglas, Architect and Surveyor, 1, St. Nicholas-buildings, Newcastle:—

G. H. Mauchlen	£2,160 0 0	E. Henderson & Son	£1,937 7 7
Haswell & Waugh	2,130 0 0	Brown & Bell	1,900 9 9
J. McNeil & Son	2,101 14 0	Middlemiss Bros.	1,900 0 0
E. T. George	2,100 0 0	Charlton & Henderson	1,884 10 5
W. S. Anderson	2,051 9 0	W. Hall	1,873 16 0
S. Easten, Ltd.	2,049 13 10	J. Craven	1,861 0 0
P. Thirlwell & Son	2,025 12 0	Veitch & Jordan	1,835 14 4
J. C. Hope	1,991 4 2	R. R. Davison	1,824 4 0
J. & W. Lowry	1,991 0 0	J. Jackson & Sons	1,817 10 0
G. Wilson	1,986 16 9	W. H. Ayton, Newcastle*	1,763 12 6
W. Foster	1,979 10 0		

PONTYPOOL.—For additions to Primitive Methodist Church. Messrs. Habershon, Fawckner, & Co., architects, 41, High-street, Newport and Cardiff:—

Poulton & Whiting, Pontnewydd, near Newport £94 12

READING.—For alterations and additions to The Reading Union Workhouse. Mr. W. G. A. Hambling, architect, Reading:—

T. F. Whiting	£553 0	G. Pilgrim	£487 0
W. Stokes & Sons	518 5	F. Newberry	448 0
G. S. Lewis & Bros.	512 0	R. Webber & Sons, Orts-road, Reading*	436 9
A. Faulks	498 0		
W. Bourton	497 0		
H. W. Godwin	494 0		

[Architect's estimate, £430.]

St. ALBANS.—For road works, Stansfield-road, St. Peter Rural, for the Rural District Council. Mr. H. F. Mence, Surveyor to the Rural District Council. Quantities by Surveyor:—

J. Dickson	£873 19 0	G. Rowdrill	£747 17 0
C. Miskin & Sons	847 0 0	W. Deamer	659 18 3
Wallace & Inns	839 0 0	H. Williams, St. Albans*	655 6 3
W. J. Skelton	810 12 11		

ST. MARGARET'S BAY (near Dover).—For alterations and extension of the Granville Arms Hotel. Messrs. Thomas Dinwiddy & Sons, architects, 54, Parliament-street, S.W., and Greenwich. Quantities by Messrs. R. L. Curtis & Sons:—

G. B. Cotten	£4,994	R. W. Paramor	£4,549
W. J. Adcock	4,779	T. T. Denne	4,473
G. E. Wallis & Sons	4,660	G. H. Denne & Sons, Deal*	4,280
J. J. Wise	4,618	Turner & Watts	4,232
G. Browning	4,595		

TEIGNMOUTH.—For telescoping an 80 ft. gasholder, for the Urban District Council. Mr. J. A. Gray, Engineer and Surveyor, Gasworks, Teignmouth:—

R. Dempster & Sons, Ltd.	£710	Ashmore, Benson, Pease, & Co., Ltd.	£641
C. & W. Walker, Ltd.	650	Head, Wrightson & Co., Ltd.	572
Westwood & Wrights	647	Willey & Co., Ltd.	550
Newton Chambers & Co., Ltd.	647	E. Cockey & Sons, Ltd., Iron Works, Frome*	470

YSTRAD (South Wales).—For the erection of a half-way house, hotel, Ystrad, Mynach, for Messrs. D. Williams & Co., Taff Vale Brewery, Merthyr Tydvil. Mr. Richard Edwards, architect, Brynhenlog, Treharris. Quantities by Messrs. Robey E. Carpenter & Son, Quantity Surveyors, 112, St. Peter's-road, Leicester:—

Hatherby & Co.	£3,655 0 0	Knox & Wells	£3,157 0 0
A. Richards	3,600 0 0	R. J. Evans	3,100 0 0
W. Yeo	3,350 0 0	J. Lewes	3,100 0 0
J. Jenkins	3,344 0 0	Gough Bros.	3,075 0 0
Cox & Bardo	3,316 13 0	E. R. Evans	3,045 0 0
Gibbon & Son	3,290 0 0	N. Williams	2,993 8 4
Davies & Sons	3,290 0 0	J. Williams	2,980 4 4
Jones Bros.	3,275 0 0	Voddeer & Lee	2,970 13 6
Jones & Coslett	3,251 0 0	H. Rees	2,930 0 0
		W. Williams*	2,900 0 0

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MAGNETIC 35 x 15'0"

ELECTROCHEMICAL LABORATORY 35 x 15'0"

BALANCE ROOM 10 x 14'0"

GALVANOMETER 26 x 25'0"

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SECONDARY STUDENTS 30 x 16'0"

LECTURE ROOM 30'0 x 30'0"

PRIVATE 23 x 12'0"

UPPER HALL

PRIVATE 23 x 12'0"

APPARATUS ROOM 28 x 16'0"

LECTURE ROOM FOR NATURE STUDY 48 x 32'0"

STORE

LAVATORY

PREPARATION ROOM 23 x 16'0"

RETIRING ROOM & DEMONSTRATOR 23 x 16'0"

LECTURE ROOM FOR 200 64 x 40'0"

PROFESSOR 20 x 15'0"

ASSISTANT 15 x 12'0"

PASSAGE

MEZZANINE FLOOR

RESEARCH 20 x 16'0"

OPTICAL 20 x 12'0"

OPTICAL 20 x 15'0"

PRIVATE 20 x 15'0"

PROFESSORS LABORATORY 34 x 20'0"

GALLERY

UPPER PART OF PHYSICS LECTURE THEATRE

LIBRARY 21 x 15'0"

SMALL PHYSICS LECTURES 22 x 20'0"

RESEARCH 20 x 15'0"

PROFESSORS LABORATORY

RESEARCH 20 x 15'0"

SMALL CHEMISTRY LECTURES 22 x 20'0"

LIBRARY 21 x 15'0"

CORRIDOR

GALLERY

UPPER PART OF CHEMISTRY LECTURE THEATRE

PROFESSORS LABORATORY 34 x 20'0"

PRIVATE 20 x 15'0"

WORK ROOM 28 x 20'0"

DEMONSTR 20 x 17'0"

ADVANCED CHEMISTRY LABORATORY 90 x 40'0"

BALANCE ROOM 17 x 15'0"

COMBUSTION ROOM 17 x 15'0"

UPPER PART OF LIBRARY

PREPARATION RM 17 x 12'0"

LECTURE ROOM 35 x 21'0"

STORE

PUBLIC LABORATORY

UPPER PART OF MUSEUM

DINING ROOM 30 x 20'0"

KITCHEN 25 x 20'0"

SERVICE 30 x 10'0"

DINING ROOM 30 x 20'0"

ASSISTANT 16 x 12'0"

STORE

STORE

PROFESSOR 20 x 16'0"

PASSAGE

MEZZANINE FLOOR.

PROFESSOR 17 x 12'0"

ASSISTANT 17 x 12'0"

ASSISTANT 17 x 12'0"

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CORRIDOR

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LECTURE ROOM 30 25 x 22'0"

LECTURE ROOM 30 25 x 22'0"

LECTURE ROOM 30 25 x 22'0"

LECTURE ROOM 30 25 x 22'0"

LECTURE ROOM 60 35 x 22'0"

LECTURE ROOM 60 35 x 22'0"

LECTURE ROOM 60 35 x 25'0"

LECTURE ROOM 30 25 x 21'0"

LECTURE ROOM 30 25 x 21'0"

LECTURE ROOM 100 60 x 23'0"

LECTURE ROOM 90 30 x 23'0"

ARTS AND ADMINISTRATIVE.

FIRST FLOOR PLAN.

PHYSICS AND CHEMISTRY.

UPPER GROUP.

DYNAMOS 40 x 24'0"

ELEMENTARY PHYSICS LABORATORY 60 x 40'0"

CORRIDOR

APPARATUS ROOM 60 x 20'0"

BATTERY RM 17 x 13'0"

RESEARCH ROOM 21 x 15'0"

SMALL LECTURE ROOM 22 x 20'0"

ENTRANCE HALL

ELECTROCHEM LABORATORY 22 x 20'0"

RESEARCH ROOM 21 x 15'0"

CORRIDOR

PHYSICS LECTURE

MENS

WOMENS

CHEMISTRY LECTURE

CHEMICALS 17 x 15'0"

APPARATUS ROOM 31 x 20'0"

MENDING SHOP 20 x 12'0"

SPECIAL LABORATORY 30 x 15'0"

ELEMENTARY CHEMISTRY

FIRST FLOOR PLAN.

PHYSICS AND CHEMISTRY.

DAY TRAINING DEPARTMENT.

MUSEUM AND LIBRARY.

ARTS AND ADMINISTRATIVE.

GROUND FLOOR PLAN.

SCALE OF FEET.

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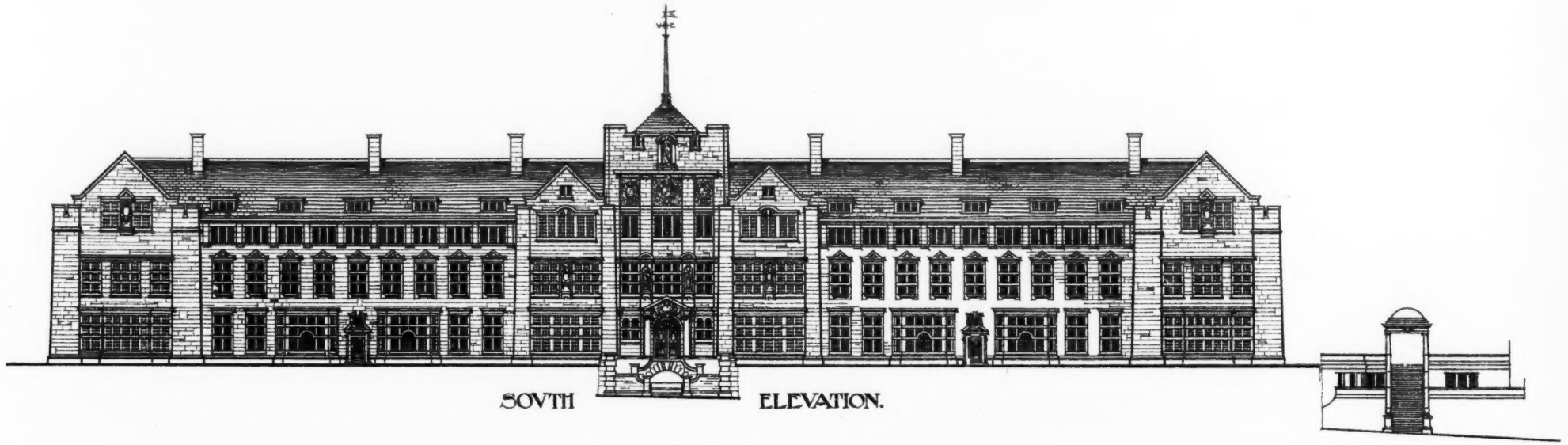
VPPER GROVP.

WEST ELEVATION.



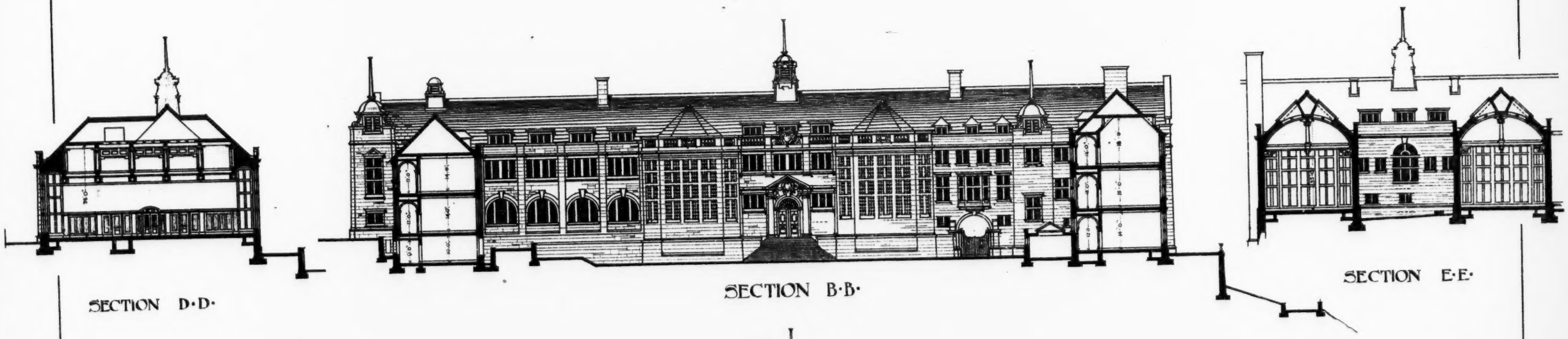
SOVTH ELEVATION.

NORTH ELEVATION.

VPPER

NORTH ELEVATION.

SECTION A·A·



SECTION D·D·

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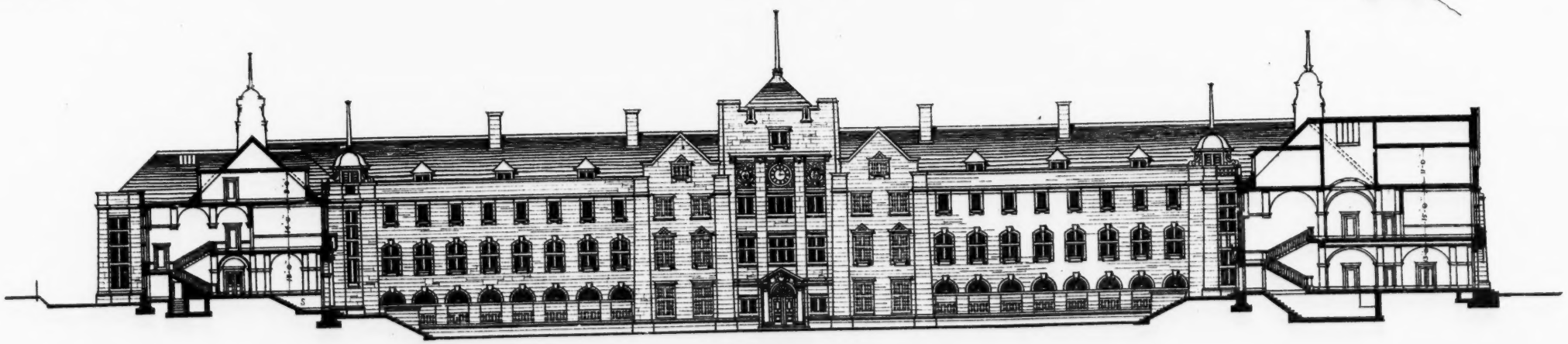
SECTION E·E·



SECTION C·C·

SCALE OF FEET.

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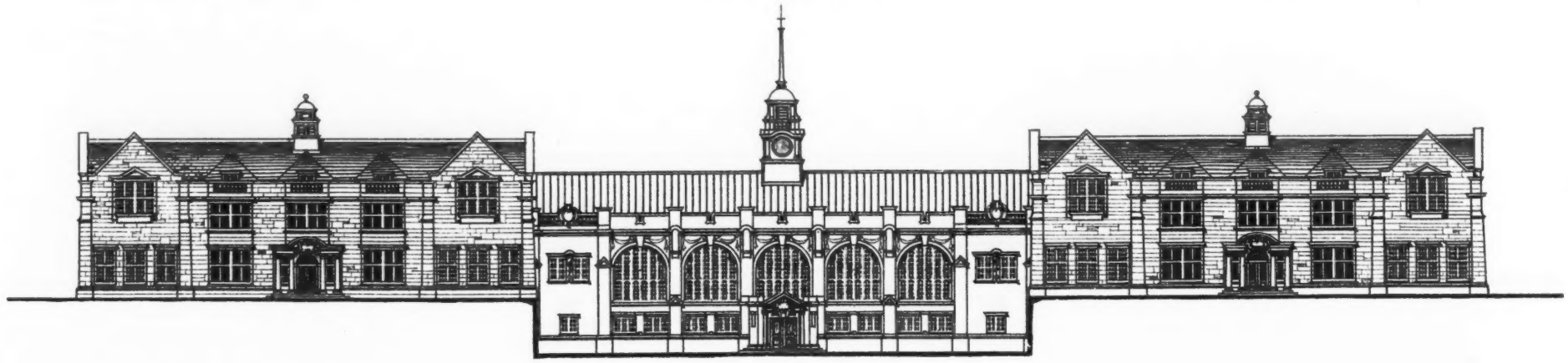
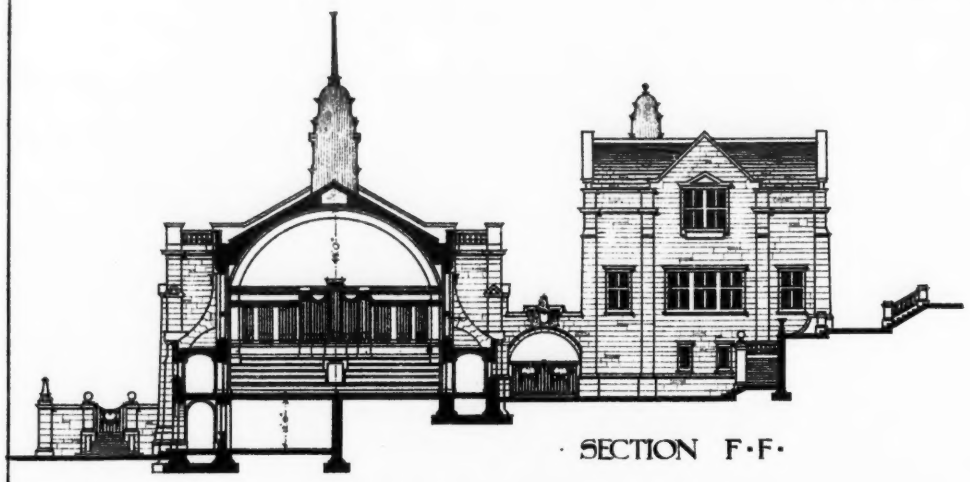
LOWER GROVP.



NORTH ELEVATION.



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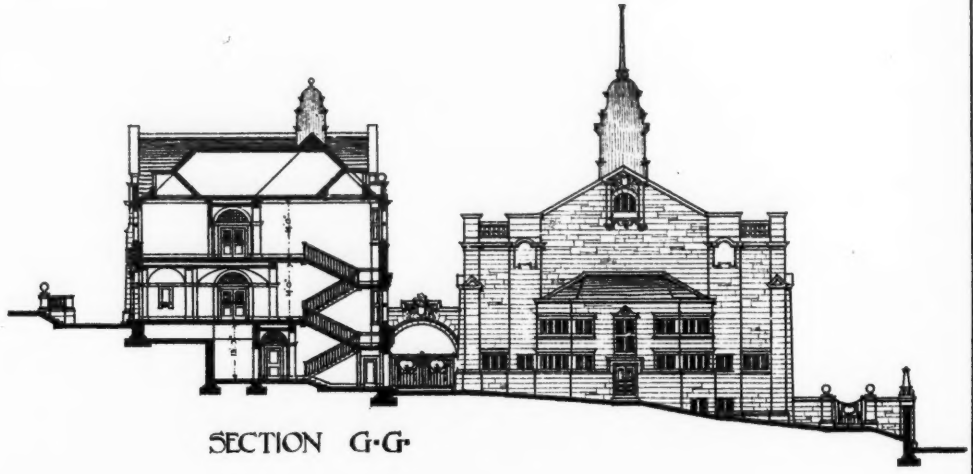
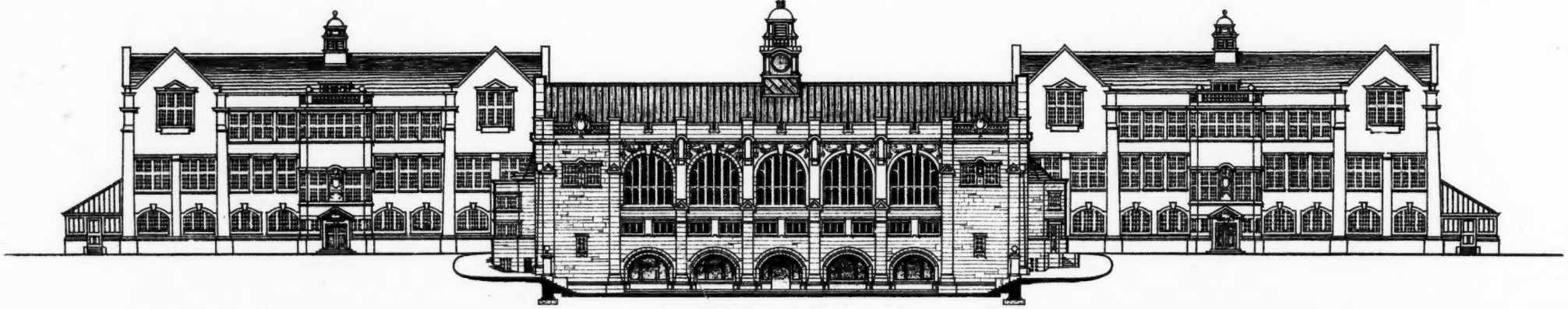


SECTION G·G·



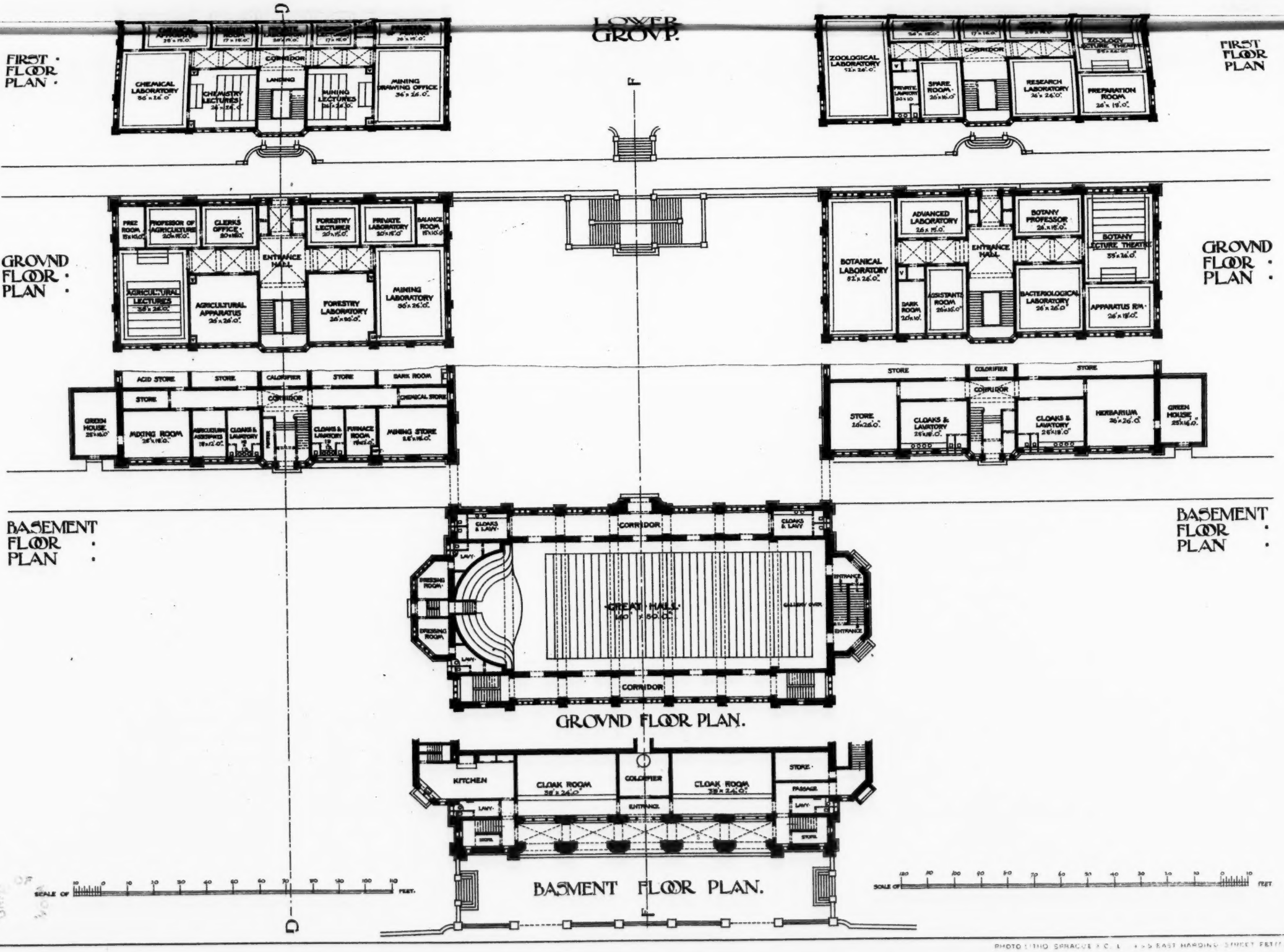
SOVTH ELEVATION.

FIRST FLOOR PLAN

LOWER GROVP.

FIRST FLOOR PLAN

SOUTH ELEVATION.



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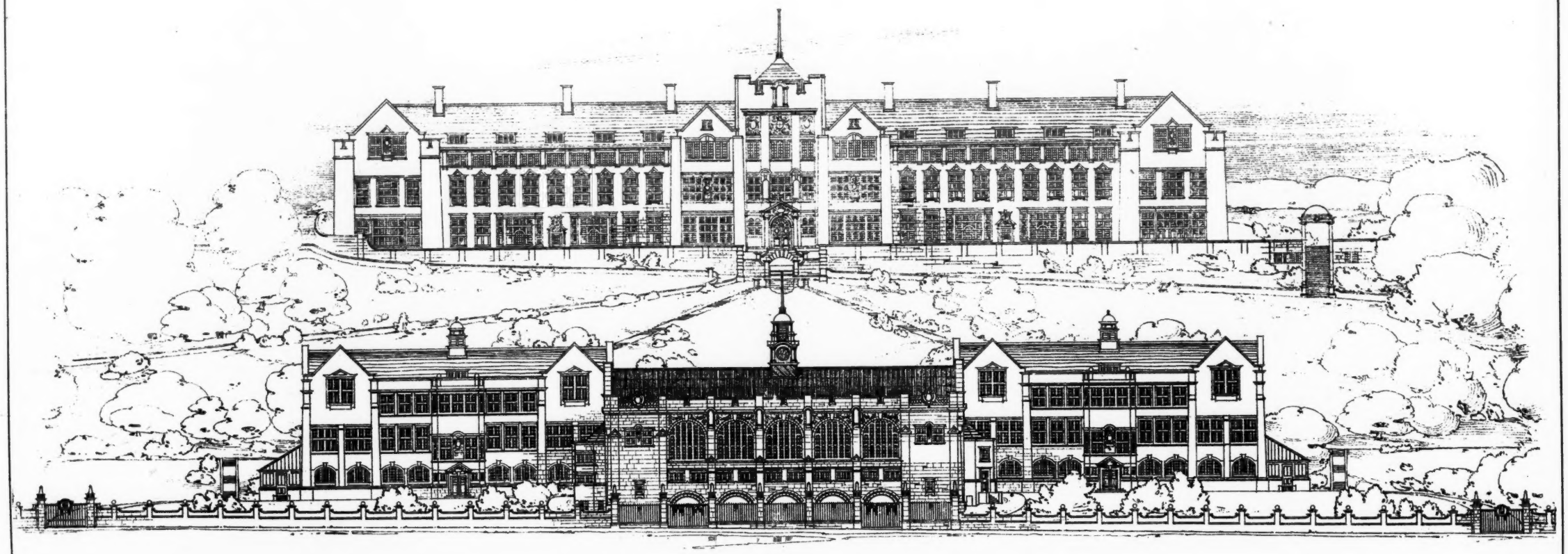

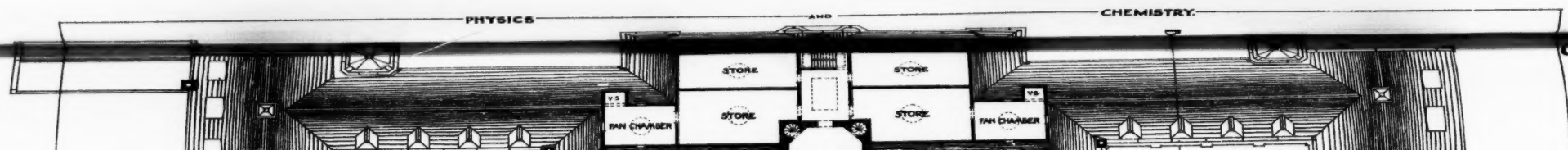

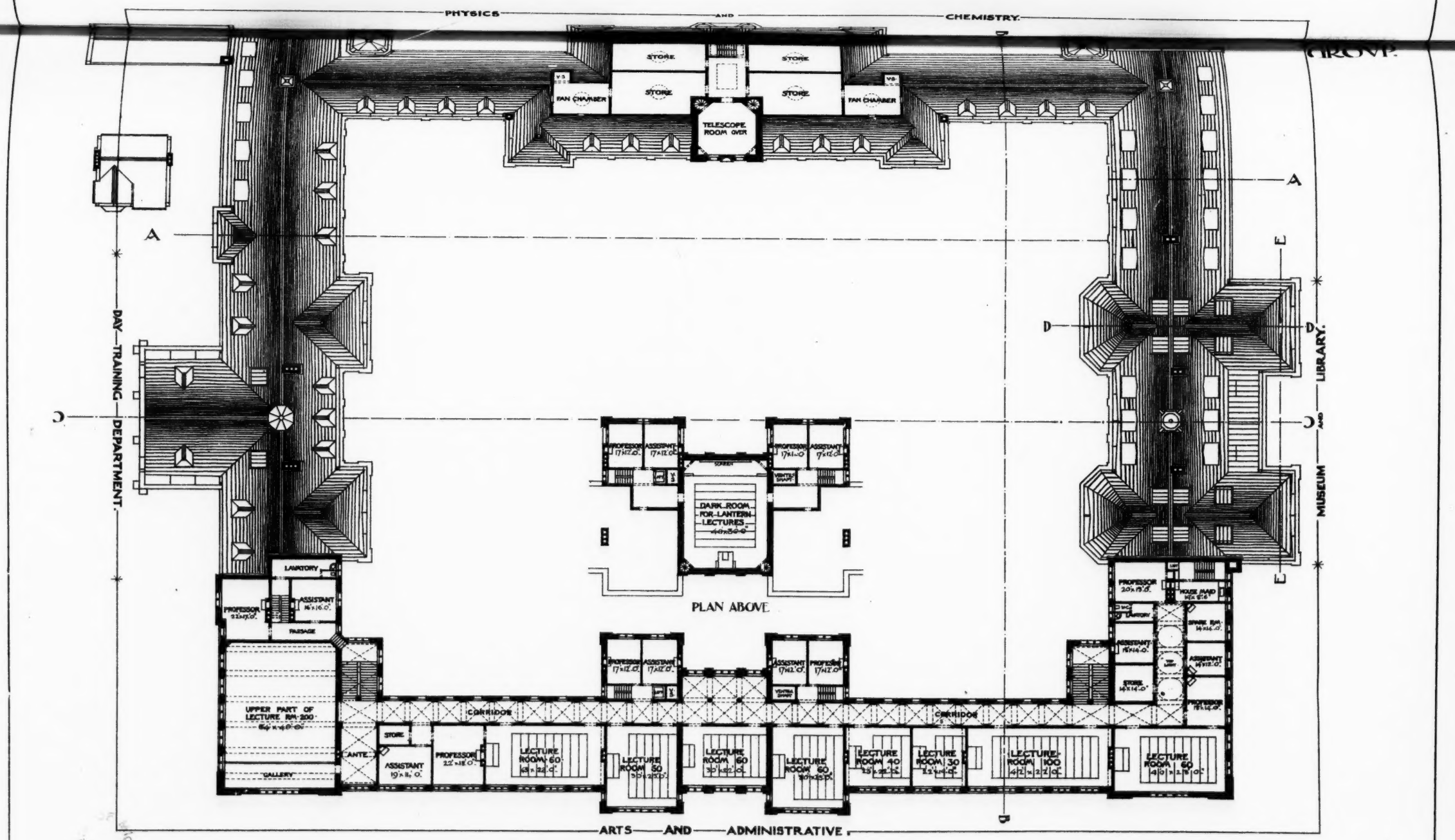

SECOND FLOOR AND ROOF PLAN.

SCALE OF 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150 160 170 180 190 200 210 220 230 240 250 260 270 280 290 300 310 320 FEET.

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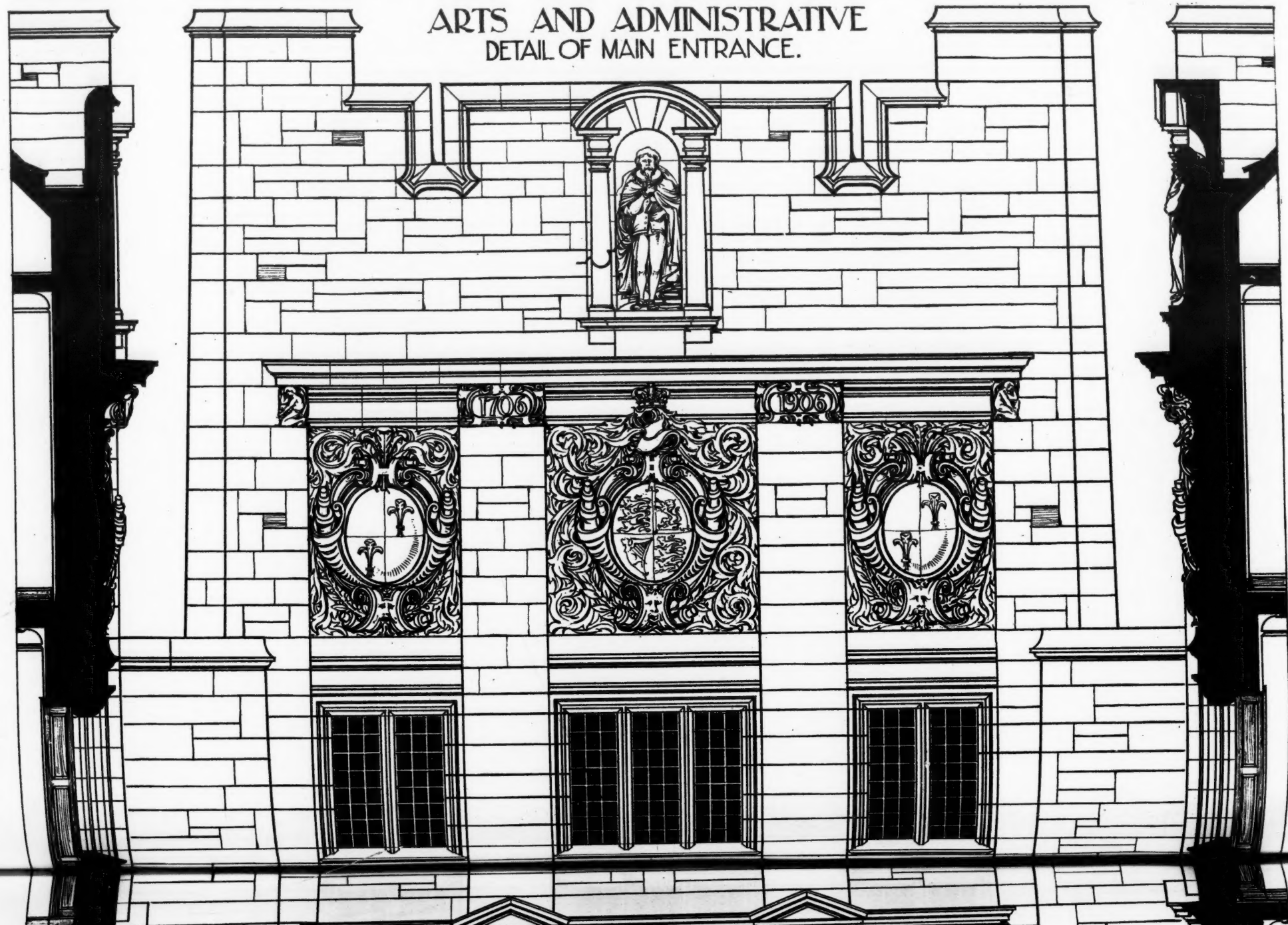
DETAIL OF MAIN ENTRANCE.



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